NATIONAL CAR BUILDER

VOLUME XVI.
NUMBER 1.

DEVOTED TO THE INTERESTS OF RAILWAY ROLLING STOCK.

$1.00 PER ANNUM
SINGLE NUMBERS TEN CENTS.

NEW YORK:
Morse Building, 140 Nassau St.

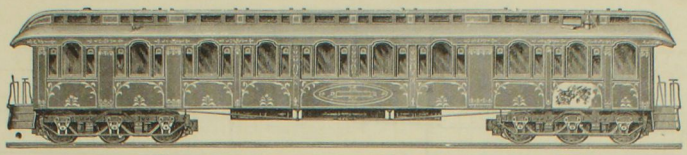
JANUARY, 1885.

Entered at the Post Office at New York N. Y., as Mail Matter of the Second Class.

CHICAGO:
144 N. Clark Street.

Index to Advertisements in the National Car-Builder.

THE NATIONAL CAR-BUILDER.



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Miscellaneous Items.

MR. FRANK C. SMITH has accepted the position of Superintendent of The Locomotive Improvement Co., at Toledo, O. The company rent locomotives, and manufacture a traction device, and other railroad appliances.

THE New York & New England road has six large freight engines laid up in the round house, at Hartford. Two engines that were badly damaged by fire at Hoboken, N. J., some time ago, are being rebuilt. They will both have extended fronts.

THE Rhode Island Locomotive Works are building thirty engines for the Brooklyn Elevated Railroad Company, ten passenger and three shifting engines for a Western road, and have just completed a large experimental engine for the Locomotive Improvement Company, Toledo, O.

THE Buffalo Car Works have completed a monster snow-plow for the Rochester & Pittsburgh road. It has two pairs of trucks, is 15 feet high from the rail to the elevated deck, is 33 feet long, weighs 58,500 pounds, and is loaded with 1,700 feet of old rail. It is regarded as one of the best constructed plows ever built.

THE Pittsburgh Locomotive & Car Works have sent to the New Orleans Exposition three locomotives, one a saddle tank switch engine, weighing 56,000 lbs.; another a passenger engine for the Jacksonville, Tampa & Key West road, weighing 72,000 lbs., and the third a heavy passenger engine, weighing 92,000 lbs.

THE Northern Pacific bridge across St. Louis bay, between Duluth and Superior, when completed, will be one of the greatest railroad bridges in the North-west. It will be nearly one mile in length, and will be composed of three sections. The draw will be 246 feet long, the fixed truss s ban 160 feet, and the pile bridging 4,290 feet making the total length 4,696 feet.

THE catalpa twigs set out by the Evansville & Terre Haute R. R. Co. two years ago are now about three inches in diameter, and in three years more will be large enough for cross-ties. Some five years ago a gentleman of Lawrence, Mass., planted a few catalpa seeds, and now has several beautiful trees fully eight feet tall, which this year blossomed for the first time.

THE Pratt & Whitney Co., Hartford, Conn., are building special machines of various kinds, in addition to their regular work. The force employed is between 400 and 450 men. They have now in hand and partially constructed, a large ice machine, a torpedo boat, and some fine tools for a Western sewing machine company, and have also an order from an Eastern concern for a lot of fine special tools.

A CAR for photographing purposes has just been built for a photographing firm in Mobile. It is 47 feet long, 10 feet high, and 10 feet 4 inches wide over all. In the central part there is a 24-foot sky-light. There is also a reception room, ladies' room and dark room. In a locker under the car body, rails, ties and other requisites are carried for constructing temporary side tracks at points where the usual road tracks are not available. The car is designed to supersede the old-fashioned perambulating saloon on wheels, but unlike that, can only make its presence felt at points along the lines of railway or contiguous thereto.

MR. C. B. RICHARDS, superintendent of the Southwark Foundry, Philadelphia, and for twenty years superintendent and chief engineer of Colt's Armory, at Hartford, has been chosen to fill the chair of Dynamics in Yale College. Mr. Richards is the inventor of the well-known Richards Indicator, the forerunner and foundation of all modern indicators applicable to high-speed engines. The value of this invention to steam engineers is incalculable; and although forms have been devised in recent years which are more satisfactory for use on high-speed engines, yet the original is still in successful use, and for engines of moderate speed produces cards with accuracy and certainty. In Mr. Richards' new position, his ripe experience will furnish the coming generation of engineers with most valuable lessons.

THE Curtis & Wood car coupler was recently subjected to a series of severe tests on the Philadelphia & Reading road, at Coushohocken, Pa. The strength of the hook employed in coupling was tested by backing the cars to a loaded train of twenty cars with all their brakes drawn tight, and several jerks were made with a full head of steam on, by reversing and throwing forward the locomotive. Every test failed to break or injure any of the part of the coupler. The coupler was also tested by placing the link at any angle and by catching a car flying at the rate of twenty miles an hour. In each case it was absolutely perfect in its action. The tests were witnessed by a number of railway officers, including the General Superintendent and Roadmaster of the above-named road.

A DECISION was rendered by the United States Supreme Court, on December 8, in the case of the Chicago, Milwaukee and St Paul Railway Company, plaintiff in error, vs. Duane O. Ross. This was a suit brought by the engineer of a gravel train against the company to recover damages for injuries sustained by him in a collision with a freight train, due to the carelessness of the conductor of the latter. The court below charged the jury that if in their opinion the accident was caused by the negligence of the conductor of the freight train, and without contributory negligence on the part of the plaintiff, the railway company was liable, because the relation of superior and inferior was created by the company as between the two, in the operation of its train, and they were not, within the reason of the law, fellow servants engaged in the same common employment. This court holds that the charge was correct. The judgment of the Circuit Court is affirmed.

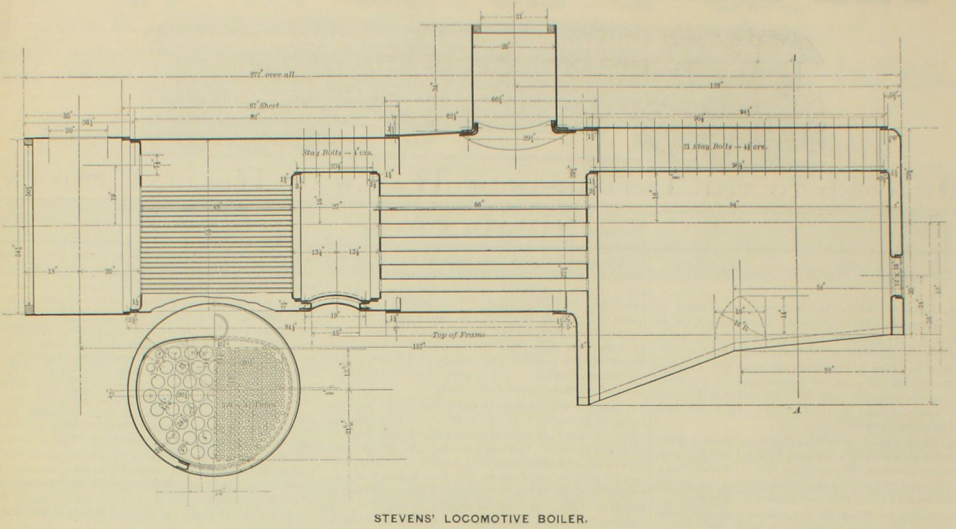
THE shops of the Connecticut River road, at Springfield, Mass., are busy with repairs. Mr. Hitchcock, the Master Car-Builder, has just been giving them a thorough overhauling, and has painted and white-washed them inside. The result is very satisfactory in these short winter days. The road has adopted the American driver-brake, and about 20 of the engines are already equipped with it. This includes all the switching engines, most of the freight engines, and two new passenger engines which have just been put in service. The road is using the American automatic freight brake on about 60 freight cars, where it is working well. The Boston & Albany have adopted the driver-brake for the whole road, and are now putting it on all their freight engines. It takes the place of the Westinghouse on the tenders of the passenger engines because of its extremely rapid operation. For freight work, especially in switching, the saving in time by the use of a brake on the drivers is very marked. The stops are quickly made, even with 20 cars, while the brakemen have nothing to do but to attend to coupling, cutting off and the handling of the cars cut off.

Engineering says of the cantilever bridge of the Canadian Pacific over the Frazer River: "This would have been the first bridge on this principle erected in America had it not been for the very long time that was occupied in bringing the iron-work across the Atlantic. The span of the Frazer River bridge, from centre to centre of the cantilevers, is 315 feet. The two levers are each 210 feet long, and they carry between them a girder 105 feet, so that from the anchorage at each end the truss support is 525 feet. The centre of each cantilever is carried by a stone pier 72 feet high from the rocks on the river bank, and the outer end of the levers are held in position by an anchorage in the abutment founded on the solid rock of the river bank. All the piers, links, centres, and the lower chords of the cantilevers are of Siemens-Martin steel, whilst the other parts of the truss are the best refined iron. The bed-plates and anchorages are of cast-iron, the weight of the whole being 243,000 pounds of cast-iron, or about 546 tons altogether. The strains are calculated to carry a train the full length of the bridge, weighing 2,500 pounds to the foot run in length, with two locomotives at the head, each weighing 55,000 pounds, on three pairs of drivers, not over 14-foot wheel base in addition. The wind strain is calculated for the full surface of both trusses and a train showing a side exposure of 10 feet in height and the full length of the bridge.

AT the New Haven shops of the New York, New Haven & Hartford road, two baggage cars, and the last one of four combination baggage and smoking cars, have just been completed. The baggage room in the latter is 19 feet in length. The finish of the smoking-room is in ash, with ash ceilings put up in panels formed of 1¼ inch tongued and grooved strips. There are no transom lights over the windows, as in the other new cars of the road, but the glass is two inches higher and wider. The roof lines are straight, which adds about six inches to the height of the car sides. The carlines are straight grained, light, and strong. The seats are upholstered in smoke-brown leather. The seat arms are of metal, with wooden arm-rests held in place by a couple of bolts. There are also four card tables set on posts and immovable. The large windows and light-colored finish give the interior a very light and cheerful appearance. There are from fifteen to twenty cars in the shop undergoing repairs. Long sills, when practicable, are put into those that were originally built with cross-framed floor timbers; the windows are made larger and the inside entirely remodeled. The old style of air-brakes has also been replaced with automatic on all the passenger equipment, and the timber is being got out for four new baggage cars. These shops do the repairing for all the passenger train cars of the road, amounting in the aggregate to some 450. Mr. James Denner is the Master Car-Builder.

THE construction of new railroads in the United States may be checked, but the dullest of dull times does not bring such work to a dead stop. In eleven months of this year, according to good authority, we built 3,626 miles of main track, exclusive of second and third tracks and sidings. This is a greater length of new road than was completed in the same time in 1873 or any following year up to and including 1879. Of recent years, 1875 showed the lowest mileage in the same period, having constructed only 1264 miles. With our present capacity for the manufacture of railroad material, however, we need a demand such as was seen in the years 1872 or 1881 or 1882. But, as the months roll on, the country will accommodate itself to the changed condition of the railroad interest, and if the fever of new construction does not rage again within a short time, such changes will have taken place in the manufacturing establishments which were built almost exclusively to supply the requirements of the railroads that the bugbear of over-supply will completely disappear. The rail mills have been quick to turn to other more inviting fields, quite a number of them now being practically independent of the demand for rails. This is an enterprising country, and, if an establishment is well located for supplies and markets, its owners can soon divert it from its original purpose to something more promising. The coming year will be full of changes if the railroad interest continues depressed.—*Iron Age.*

MR. HENRY D. BEACH, Superintendent of Rolling Stock of the Naugatuck R. R., has just completed a new passenger coach with a seating capacity for 62 persons. In its general construction it is similar to the mahogany-finished coaches built some two years ago by the New York, New Haven & Hartford road, but differs from them in several important particulars. The inside finish is in mahogany, but the style of the cabinet work is more simple. The seats are covered with old gold plush. The transom lights over the windows do not open, which allows the sash to be lifted to the usual height, and prevents the entrance of dirt and dust. The lines of the roof are straight inside, and a light-colored canvas head-lining is used, but instead of being put up in large pieces is divided into small panels similar to a wood lining. The light colors of the lining make the car very bright and cheerful, and they contrast well with the handsome mahogany finish. In one corner of the car a curtain-rod extends from the saloon out to the aisle, thence along the aisle to the third seat and then to the side wall. The object of this is to make the space available for a bed or berth in case it is needed for a sick passenger, the central seat being taken out to make room for the bed. Except in such an emergency, the presence of the rod is the only thing which makes this corner of the car differ from the other corners. There are no basket-racks, but merely umbrella rings over the windows. What is lost in the matter of convenience by the absence of racks is made up by the improvement in the internal appearance of the car. The wheels are from the works of the Patent Shaft and Axletree Co., Wednesbury, England. They are 42 inches in diameter and have teak centers. The side sills are 5 × 9 inches, intermediates 4½ × 8, posts 1¼ × 8¼, and panels ⅞ of an inch thick. The truss-planks are 2½ × 12 inches, and are fastened to each post with two large screws.



STEVENS' LOCOMOTIVE BOILER.

The engravings (for which we are indebted to the *American Machinist*) illustrate a locomotive boiler designed by Mr. A. J. Stevens, General Master Mechanic of the Central Pacific road. Boilers of this kind are said to give very high evaporative results in heavy service. We refer to the following letter of Mr. Stevens to the above named paper, for descriptive particulars :

SACRAMENTO, CAL., Nov. 11, 1884.

Editor American Machinist :

I notice in the *American Machinist* of Nov. 15 an article relative to the Coventry locomotive with the return tube boiler.

I wish to state, for what it is worth, that boilers of this style were built by Mr. C. W. Stevens as far back as 1859, and were used upon the Market Street Railroad at San Francisco. They were small, but large enough to determine their value as compared with the ordinary locomotive boiler. There were four engines—wood burners—two with the return tube boiler and two with the common locomotive boiler. The latter did very much better work than the former, steamed more freely, and burned by far the least fuel. The return tube boilers were considered a failure. In the case of the Coventry boiler, if it was built to burn coal, I think it would do very much better if the tubes were leading from the furnace instead of from the forward connection of the smoke arch. However, I do not believe a boiler of this description will ever prove successful.

I send you a blue print of a boiler that we have had running upon this road for a short time. It is possible that boilers like this may have been built heretofore, but I have never seen nor heard of any. I hold a patent for steamboat and stationary boilers built on a somewhat similar plan, only that they have return tubes and an upper center chamber placed right over the lower one. There are flues from nine to seventeen inches in diameter leading from the furnace to the lower combustion chamber, and from there on to the back connection and return to the upper center combustion chamber, thence to the up-takes. Four-inch tubes are used. There is also a row of tubes connecting the lower combustion chamber with the upper, to admit of the flame passing from the lower to the upper chamber by a short cut, for the purpose of prolonging or keeping up the combustion of gases. These boilers are working splendidly, and have been in use for about twelve years.

You will observe that the locomotive boiler (blue print of which I send you) is fitted with four-inch tubes from the furnace to the combustion chamber, and from there to the smoke arch with one and one-quarter-inch tubes. It is calculated that the gases will all be burned before they reach the smaller tubes, which seems to be the case in actual service, so far as we have experimented, as but very little black smoke is emitted from the stack at any time, and then only when fresh coal is put in, and will not continue more than a few seconds. My idea is that the gases will burn freely in a four-inch tube where the flame would be extinguished in a two-inch tube, or in a tube such as is usually used in a locomotive boiler. As long as we have run this engine we have never seen a spark of fire coming from the stack. She is worked under 140 pounds of steam, and steams very freely, and so far has made an average of 33.50 miles to the ton of Pacific coast coal, which is very fine; nine-tenths of it would pass through a screen with one-half inch mesh. You will observe that I have dispensed with the use of crown bars, and have stayed the crown sheet with screwed staybolts.

A. J. STEVENS,
General Master Mechanic Central Pacific Railroad.

THE car-wheel works of Russell & Co., St. Thomas, Canada, which have been in operation for thirteen years, have been reorganized as the St. Thomas Car Wheel Company. The works have been rebuilt and their capacity has been doubled by the new management.

Durability of Paint on Passenger Cars.

[Paper read before the Master Car Painters' Association, by E. Hartshorn, of the Maine Central Railroad.]

Mr. President and Gentlemen: Some time ago our Secretary wrote to me, asking me to suggest a subject for discussion at this convention, I chose for a subject "The best method of painting a passenger car, durability considered," but I see by the programme it has been changed to "How can we improve the method of painting a passenger car, durability considered." Now, gentlemen, I hardly know how to answer this question, but will introduce the subject by throwing out a few hints or suggestions, which, if put into practice must be a benefit to the durability of paint on a passenger car.

In the painting of a passenger car the first thing to be considered is durability, and without that the job is a failure, no matter how well the car may look when it leaves the shop. I know of no fixed rules that could be laid down as to the time between coats of paint on a passenger car, as it depends much upon circumstances; say, for instance, the priming coat will dry in six days and if the weather should be unfavorable for the drying of this coat, it should stand longer, until it is dry. Right here I would say that much depends upon this foundation for the durability of the job; it must be dry to receive the coats that are put on over it, and the painter must use his own judgment in this respect. What I mean by dry is that the first coat of priming must have time to harden so as not to crack the less elastic coats put on over it. We might paint a car very quick and even carelessly, and if it was housed and kept from the weather it would stand for a good many years, but our work is called upon to stand the severe strain of heat and cold, shrinking and swelling of the wood, vibration and twisting of the car, therefore it requires good stock, rightly mixed and a careful application of the same.

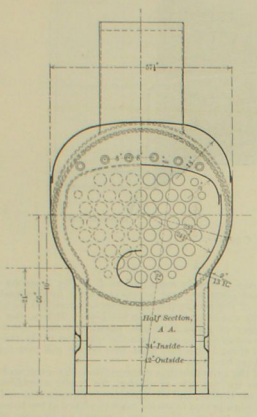
What I have said about the first coat of priming will apply to the second coat, as this is put on for the same purpose to make a foundation to build upon. For a foundation I use raw linseed oil and lead, and if properly mixed, properly applied and time given for it to dry, I know of nothing better. I mix my first coat of lead 3 parts oil, 1 part turpentine, mix quite thin, using to assist it in drying, one gill of Japan gold size; give a good free coat and lay it on evenly; for a second coat, four parts spirits of turpentine, one part oil, one gill of Japan gold size. I use this coat a little heavier than the first coat. Special care should be given to the spreading of this coat; should avoid putting a full brush of paint at the head of the panels, and at the side of the batten, for there is where paint generally commences to crack; next to the batten or under the window stools. This second coat should be well worked into the nail holes. My putty, I make three parts dried lead, one part ground lead, mixed with three parts Japan gold size, one part rubbing varnish; stiffen it with whiting. I have no trouble with this. Among painters, the methods differ from these coats; some use rough coating and rub with block pumice stone. Others use a scraping filler, and as our cars are of a light color, as a matter of economy, I use a scraping filler. I give it the preference on that account.

I don't think there is any difference in the wear, for there is very little of either left on the car except in low places. If my cars were a dark color I should rough coat them to get a better surface. Next, as to color, there is a difference in this. Some use the color ground heavy in oil, with a little Japan, and others grind their colors in Japan with a little oil. I use keg lead and chrome yellow. Care should be given that the lead is not ground too thin in oil. I prefer this for straw colored cars. I stripe, letter and ornament on the flat color. I think this is the best way for a number of reasons. The letters and ornamenting get the benefit of two coats of varnish and the paint gets the advantage of the time to dry while the work is being done. By some there is an objection to this method of finishing on flat color on account of staining the color by the hand of the workman. The remedy for this is to be careful. There is but little cleaning of the car when we get it ready to varnish. For the first coat of varnish I use a medium drying. I give this the preference. I don't believe in using two coats of wearing body varnish as quick as we have to use them. The same rule applies to varnishing as to painting. One coat should be dry enough to receive the coat put on over it. I know some painters say that varnish is very penetrating, and will unite and become one with the coat of varnish under it, but I don't see it after the under coat has been three or four days in drying. If I entertained that theory, I should varnish just as quick as I could, say within twenty-four hours. Now I believe the cracking on cars can sometimes be laid to this method of varnishing too quickly, if not I should like to have some painter tell me the reason of varnish cracking on our bay wood doors and cherry sash as it sometimes does, where there is no paint, nothing but one coat of oil. In conclusion, I would say our method of painting, durability considered, may be improved by giving more time and care to our foundation coats of paint and protecting coats of varnish.

Railway Companies as Manufacturers.

Mr. W. K. Akerman, late President of the Illinois Central Railroad, writes as follows upon this subject, in an article contributed by him to the *North American Review* for December :

"The establishment and maintenance of large and expensive manufacturing works by railway companies is, I believe, likely to be discontinued. Railway companies were not organized for the purpose of manufacturing, but for the special object of transporting merchandise and passengers. This is their particular business, and to this end the efforts of their managers should be specially directed. A manager charged with the care and responsibility of a railway cannot afford to have his attention diverted from his legitimate vocation; he has, in fact, little or no time to give to the supervision of a manufactory. In the early history of railways, before large and reliable establishments for manufacturing railway equipments and supplies existed, there was doubtless a necessity for each company to control its own manufactures in order to insure thorough workmanship and proper materials; but with the facilities now offered throughout the United States by organizations incorporated for the express purpose of furnishing the railway companies with rolling stock and other supplies, there seems to be no longer any necessity for the railways to maintain such extensive shops; smaller shops, with largely reduced forces, are all that would seem to be required for ordinary repairs. Before the war of the rebellion almost every sugar planter in the South considered it necessary to maintain a mill on his plantation to grind his own cane. It would have been as reasonable to expect that every farmer in the North should have his own grist mill to turn his grain into flour. At present, in the South, under the new order of things, one sugar mill accommodates several plantations. And so in regard to the railways; even one repair shop, conveniently located, might be made to answer the requirements of two or three lines; and in this way, by a kind of co-operative system, the cost of even running repairs could be reduced to a minimum. But as regards new work, there can be no question that it can be done now as effectually, with greater facility, and at less cost, outside of the average railway car shops. I know this does not harmonize with the views entertained by the



master mechanics and master car-builders; it is quite natural that it should not; but when the question of feasibility comes to be determined in the interest of the shareholders, I do not imagine that these gentlemen will be consulted. The practical effect of the railways employing some such outside agency would be to reduce materially their working force, and in this way diminish the labors and anxieties of their managers. Nearly one-fourth of the entire force of employés on our large railways are engaged in manufacturing and repairing, and in most cases they labor under great disadvantages, and are subjected to great inconveniences, both by reason of the disposition of their forces and the character of the tools and appliances."

floor is cut in between the sills, and forms the bottom sheathing. The truss-plank is 2 ×12 inches, and is halved upon the posts. In the day cars, however, the plank is cut or gained for the posts. The posts are of ash, 1¼ inches thick and from 3½ to 3¾ inches wide. The plate is only 2 inches thick, but is wider than usual, being 5½ inches. This width gives the bottom of the carlines a firm bearing. The deck stringer is 6 × 2 inches, and the upper plate 4½ × 2. The rafters, or carlines, are of ash, 1¼ thick, by 2¼ wide, their lower edges come flush with the bottom of the plate, but they have a piece of blocking, shown on the right hand side of the car, Fig. 2, to hold them in place. The upper rafters are 1 inch thick by 2⅜ deep. They are all of very carefully selected stuff, clear and straight grained. There are seven iron carlines 2½ inches deep by ⅜ thick. The blocking is of ash, only ⅛ inch thick, and is got out at the mill like other portions of the framing.

The panels are put on with unusual care. They are canvased on the inside and the glue thoroughly rubbed in, have two coats of paint, are put on with white lead, nailed fast, and three screws put into each, holding it to each piece of blocking. These screws are put in from the outside. An ash belt is halved on to the posts at the top of the window opening. This is 2 inches wide, but only ⅛ of an inch thick. A similar belt is put on to the posts under the windows, half way between the window sills and the floor. This ties the posts together very firmly. The window sills are continuous, and are gained to the posts. The car is held together with the usual rods. The vertical rods are ½ inch in diameter, with ⅝ inch ends. One rod goes down between each pair of windows.

Fig. 1 shows part of the bracing of the car. Fig. 2 is a view of the side of the car directly over the bolster. It shows the very neat method of putting in a truss to hold up the end of the car. A stout ash plank is set up directly over the bolster on the sill, and carries in its top a V-shaped loop of wrought iron. Two straight truss-rods run up into the loop, and are held by nuts at both ends. This construction makes repairs very easy and has the advantage of being cheap. In the roof there is a ⅝-inch longitudinal rod running through the carlines just inside the deck strings. This rod has ⅝-inch ends. Its position is shown in Fig. 1.

The cars of this description have 31 chairs, and a smoking room with 8 seats, also 33-inch paper wheels. Their weight is 42,000 pounds. The day coaches of the road weigh 38,000 pounds, have the same size of body, and seat 62 passengers. Both classes of cars are very light for their respective seating capacities, which is due to the good quality of the materials and excellent workmanship. The engravings are imperfect reproductions from photographs. The window sill, and battens of the posts, are not correctly represented. The former slopes sharply away from its top edge outwards.

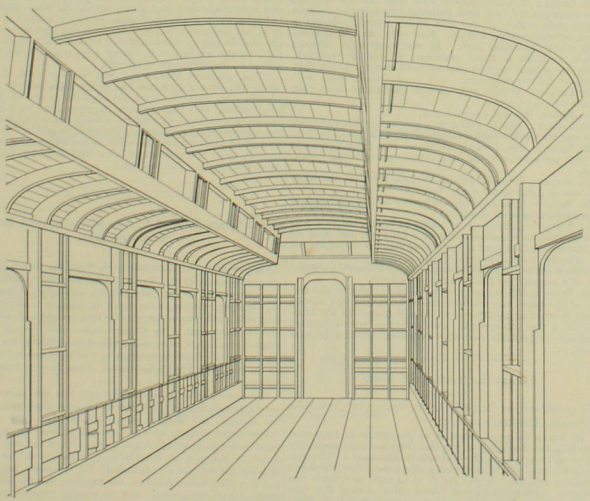


Fig. 1.—Interior Frame of Chair Car, Chicago, Rock Island & Pacific Railroad.

The construction of the chair-cars of this road differs in some respects from that of ordinary passenger coaches, but the general features of the framing are similar. There are six 4 × 8 inch sills, and three floors. The upper floor is of narrow ash stuff ⅝ inch thick, tongued and grooved and driven in very tight. (The floor represented in the engraving is a temporary one, as it appears in the photograph.) Under the upper floor proper is a diagonal floor of ⅛ stuff, also tongued and grooved. The cross-framing only goes down two-thirds the depth of the sills, and at this point nailing-strips are put on, to which another ⅛ floor running lengthwise of the car is nailed. This

Master Car-Builders' Club.

CAR WHEELS.

The regular monthly meeting of the Club was held at the rooms, 113 Liberty street, on Thursday evening, Dec. 18.

Mr. L. Garey, the President of the Club, announced that the subjects for discussion were Car Wheels and Axles, and called attention to the fact that according to records that had been kept by a number of roads, about 90 per cent. of all wheels removed on account of breakage was due to cracked plates.

Mr. M. N. Forney referred to the very small number of broken wheel centres reported by the English Board of Trade, and thought it was very significant in view of the fact that thousands of cast iron wheels are broken on American roads.

Mr. W. W. Snow submitted the following questions received by him from a correspondent: What do you consider the proper test of the comparative value of irons of different kinds for the manufacture of car wheels? that is to say, when the wheel made from such an iron is broken under a drop-weight or otherwise, what appearance should the iron present in the body of the wheel to be considered good iron? Do you judge of the iron from the appearance of the wheels cast from it, or do you apply some other test? In regard to old car wheels for use and manufacture into new wheels, what do you consider the comparative value of good quality in them? Do you judge by their appearance, and if so, what are the characteristics you wish them to present? Do you apply any other test?

Mr. W. S. G. Baker: I think he would have to tell us something about the old wheels he proposes to use.

Mr. Snow: The maker's name ought to be a pretty good test.

Mr. Garey: Would that be a good test where two or three grades of wheels are made by the same maker?

Mr. Baker: I cannot speak from experience about any grades of wheels except my own.

Mr. Garey asked what should be the weight of a 33-inch wheel suitable for heavy passenger or freight service at the present time.

Mr. Baker: I should think that a 550-pound wheel would be sufficient. They run 525-pound wheels under the fastest passenger trains to-day, and I think it would be ample for freight. I do not think it is so much a question of weight as of quality. Some cast-irons used in wheels do not show a very high tensile strength, while others show as high as 40,000 lbs. Of course, you can get a stronger structure out of a high quality of iron than you can get out of poorer quality with heavier structure.

Mr. Garey: What bearing would that have on the question of cost?

Mr. Baker: You can buy wheel iron for $17 to $18 a ton, and you can also buy it for a great deal more, but after the wheels are made it is a question of inspection as much as anything else.

Mr. Garey: Then you would say that the lighter wheels would be the most expensive.

Mr. Baker: Yes, if made of higher priced material. I am inclined to the opinion that it would be a good plan for the railroad companies to pay for wheels on a mileage basis; that is, pay for the miles the wheels run and not for a fixed mileage. Have a price fixed per thousand miles of service, say 10 cents a thousand miles, and when

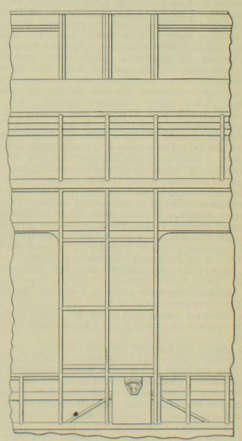


Fig. 2.—Window Panel Framing, and Truss Over Bolster

the wheel is worn out it be returned to the maker. If the wheels make a record of 50,000 miles, pay $5 and return the wheel. If the wheel makes 100,000 miles, pay $10 and return the wheel. By this means the railroads will pay for what they get. As for guaranteeing wheels for making a fixed number of miles, I don't think any man can afford to do it.

Mr. Garey: There are a number of men who stand ready to do it.

Mr. Baker: I am fully aware of that, but I do not think if the mileage is properly kept that any of them can afford to do it. They make an average mileage but not a fixed mileage. I do not see why a man should insure a property while he has no premium for doing it.

Mr. Garey: It appears to me that that would be a fair basis to purchase wheels upon, for both the manufacturer and the railroad companies.

Mr. Snow: It is the only equitable way between the manufacturer and the railroad. The maker should be

paid by the mile. If the railroad gets 100,000 miles out of a wheel, it should pay for 100,000 miles of service.

Mr. Baker: The great trouble is, railroads do not seem to discriminate between a poor, cheap wheel and a very expensive wheel. It is altogether what your wheels cost a thousand miles.

Mr. Garey: Would it not be a good plan for the wheel-makers to have a convention, setting forth this method of doing their business, and in this way induce the railroads to fall in with it?

Mr. Baker: The railroad companies do not seem disposed to keep the mileage.

A Member: I would ask if they keep the mileage on the New York Central?

Mr. Garey: Yes, sir; and very accurately. For passenger service I see no difficulty at all in that system.

Mr. Snow: The same relative position might be taken in regard to time service. If a wheel runs six years I should think the maker ought to be credited with six years' service. If two years, credit him with two years' service, or, if you choose, divide by the month, whatever it may be. The same arrangement might be made, I think, in the time service as in mileage. If a wheel fails within six or twelve months, the maker would owe the railroad company the difference between the time it runs and the time it was guaranteed to run.

Mr. Garey: In the first case he would owe, then, not only the difference in the time service, but the cost of removing and replacing. I would like to ask if there can be a better wheel made than is made by the wheel makers generally, if they are paid for it?

Mr. J. S. Lentz: If I wanted one of your wheels, Mr. Baker, on what basis would you hand in your bid? that is, as to guarantee?

Mr. Baker: I would have to know the service. I would make a personal inspection of the road to give you a price per thousand miles. Say, for instance, the amount was 10 cents per thousand miles; now, if the wheel had made 10,000 miles, and you had paid us $10 for the wheel, we would refund you $9, the old wheel would be ours, and you would pay in reality $1 for the service. If it made 100,000 miles we would retain the old wheel and the $10, while if it made 200,000 miles you would owe us $10. No wheel maker could furnish the capital to make the wheels. You pay to-day for the wheel service and not for anything else. You pay for instance, $5 for a wheel which runs a short-sand miles and then you sell that wheel for $4. It has cost you $1 for the service. I never gave any other guarantee in my life. Recently I had an application for 8,000 wheels. A car man came to me who had a thousand cars to build. He manufactured wheels himself, but he thought he could buy them cheaper than he could manufacture them. He wanted 550 pound wheels, and I gave him a price, $12.50. He said he had the wheels offered to him for $6.75, and he thought it was very much less than he could make them. He got a guarantee of 50,000 miles on every wheel. He is building the cars now, I understand, in Florida. The wheels are being furnished, but whether he gets them for $6.75 or not I am unable to say.

Mr. Snow: I believe our company was the first to establish the system in this country. We have been running it a great many years. We first started in about 1866 or '67. We sell the wheel to a railroad company at a given price. They pay us for it. When the wheel is worn out they charge us back the price that they paid us originally. I am having wheels come back to me now that are charged to us at $22. I have had several instances within two or three months. Wheels that we received $22 for many years ago, are now charged back to us at the same price, and in some instances the mileage has amounted to more than the cost of the wheels. At the same time they send the wheels back we are credited with the mileage they have run. In some cases we have received the wheels back and some money besides, while in other cases it has been very much against us. It is the only equitable way, I think, that wheels can be made and sold to railroad companies. By this means there is an inducement to make the very best wheels possible. If he can get 100,000 miles service it is a clear gain to the manufacturer. I ventilated this subject some five or six years ago, but the attention of railroad companies had not been brought to it to the extent it has to-day. Wheels under freight cars should be sold on the basis of time service—so many months to be considered as a time service, and so much per month. If they come short of that the maker is charged with it, if they come to more he gets the credit. They may run the cars a great many years before he can begin to realize a benefit from extra good wheel, but it will come if the railroads keep their mileage.

Mr. Garey: My impression is that this is very generally done.

Mr. Lentz: They may keep it, but they don't give the wheel-makers the benefit of it.

Mr. Brady: I would like to ask Mr. Lentz what mileage his road company expect from wheels made in their own foundry?

Mr. Lentz: We keep no mileage record.

Mr. Brady: The point I am desirous of bringing out is this: The railroad companies very generously ask the wheel-maker to guarantee 50,000 or 60,000 miles for cast-iron wheels. Now, where they make cast-iron wheels themselves, we wheelmen would be very glad to know how much of a mileage of service they expect from wheels of their own manufacture?

Mr. Snow: The mileage demanded by railroads varies according to the custom prevailing among them. There are some roads that demand 50,000 miles service specifically and think the manufacturer should make good any shortage below that, but are not willing to pay for anything over 50,000 miles. When we have a case of that kind, we have to get more for our wheels than if we were having a general average mileage. There is a variety of service that wheels will do on different roads and under different equipment. It is as different as can be. My experience shows that wheels running on short suburban routes are in the worst position they could be placed in. The chill becomes disintegrated and destroyed by the frequent application of the brakes, and the mileage is less than on continuous through runs.

Mr. Garey presented the following resolution which was adopted:

Resolved, That it is the sense of this meeting, and that the attention of railway managers is respectfully directed to the same, that wheels purchased for use in passenger train service ought to be bought on a general average mileage basis, and that those purchased for freight train service should be bought upon a general average time service.

Mr. J. T. Leighton: If I understand the value of the steel tired wheel it is that it will make a greater number of miles and you simply pay so much for so many thousand miles. I cannot see that there is any point made for the chilled iron men. The steel tired men make a wheel whose value is entirely dependent upon the number of miles it goes. The railroads only buy this wheel because it is cheaper, that is, it makes more miles. If the steel tired men say the wheel will run 500,000 miles, and it runs short, that is the value of the wheel. I don't care what it is, only give us a safe wheel. The railroad man wants a cheap wheel, or one that will give him the greatest number of miles for the money.

Mr. C. A. Smith: Only a short time since a railroad superintendent said to me, "It is not the cost of the wheel or the mileage, it is the safety."

Mr. Baker: I think that the question of safety will come in with any kind of wheel. If it breaks when it makes only ten miles there will be only ten miles to settle for. The wheel-maker is not going to make a wheel that will break if he can help it.

Mr. Forney: It seems to me that the railroad companies cannot afford to pay a wheel mileage and have a great many accidents. If, at the same time, they can get for a higher price a wheel with a greater mileage, it will be very much safer. I think, however, that the question of accidents cannot be ignored. It appears to me that the wheel maker ought to be charged a price for every wheel that breaks.

Mr. Chamberlain: And make it compulsory for every railroad to adopt the mileage system.

Mr. Forney: This is not a question for the railroads entirely, but the question of safety must be considered by them in making their contracts. If you get a steel-tired wheel mileage, and have an accident for, say, nearly every million miles, it is a point for the railroads to recognize.

Mr. Snow: I would suggest that we go farther and find out how many breakages and accidents there may be in steel-tired wheels for the number running, as compared with cast-iron wheels.

Mr. Baker: A wheel-maker who sells on the mileage basis must get the very best material, because he cannot carry a chill, which is the life of the wheel, without a strong structure to back it up. The only way to demonstrate it is by practical test. In our system of making wheels we have a fixed standard of tensile strength. While our wheels may be expensive to make I think they are cheap for the railroads.

Mr. Forney: Would you give a guarantee that your wheels will not break?

Mr. Baker: No, sir, I would not.

Mr. Forney: Would you give a guarantee that not more than one wheel in a thousand would break?

Mr. Baker: Yes, I would do that. But I don't mean to say that my wheels would not break under some conditions.

Mr. Forney: Would a guarantee be given that not more than one in a thousand would break?

Mr. Baker: It is a question whether we would be paid for making that kind of wheel.

Mr. Forney: Anything is likely to break, but if I was in a position as superintendent of a railroad, and had all the responsibilities, and a car wheel maker offered to sell me wheels, I should require him to give some sort of a guarantee with reference to breakages. I should fix some sort of a penalty for the breakage of wheels.

Mr. Baker: All we propose to do is to cheapen the service of the wheel and improve it—make it cost less money to the railroad company. I would not remain in the business if I was obliged to guarantee a wheel against breakage or pay the damages resulting from a broken wheel.

"What the Traffic will Bear."

Upon this subject Mr. Edward P. Vining, in a pamphlet on Freight Classification, says:

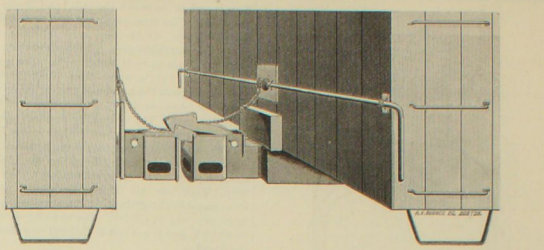
"In fixing railroad rates, it is necessary to take into consideration the effect which the proposed rate upon any article will have upon the business in question: Whether or not the rate will so materially affect the price which the consumer will have to pay for it as to limit or cripple the business. This has frequently been called fixing the rate at 'what the traffic will bear.' As a matter of fact, however, the point that is considered by railroad officers is most invariably *not* 'what the traffic will bear,' but what it will *not* bear. A certain rate is tried which the experience of the officers leads them to believe to be a fair and reasonable rate for the business in question, one in fair proportion to their other rates, and the rules upon other roads for similar shipments. Immediately the complaint is made by those who are interested in the business (and unfortunately it is usually made as loudly when there is no cause for it as when it is well founded), 'The rate is too high—it is more than we can pay and compete with others who are engaged in the same business elsewhere, and if it is not reduced we shall be obliged to give up a large portion of the business which we might do if a lower rate were fixed.' The competent general freight agent cannot afford to overlook or ignore this complaint. Although often made without sufficient cause, nevertheless it is sometimes well founded; and in such case a remedy must be found. The interests of the railroad company are so inextricably intertwined with those of the people that no business can suffer without involving the company also in the loss. Hence, the traffic manager or general freight agent is called upon many times every day to entertain the question: 'Is this complaint true: Is it a fact that *this traffic will* NOT *bear* the rate that has been fixed.'

"If the principle that was considered by a railroad officer was to fix the rate at *all that the traffic would bear*, the rates upon silks, and all expensive dry goods, teas and many other high-priced luxuries might be fixed at ten times what they are to-day. How much would an increase of a few cents per hundred pounds, yes, even of a dollar per hundred pounds (or one cent per pound), affect the price of silks, ribbons, laces and millinery goods? How much would the consumption of tea be reduced if one cent per pound were added to its price? The truth is that no railroad officer ever figures upon the maximum rate that might be charged upon such shipments. Such articles are charged higher rates than are charged for the transportation of coal, lumber, grain and iron, but the maximum prices have long been fixed by common custom, and at figures which bear no appreciable ratio to the charge that the traffic would bear.

"While it is true that competition compels the common carriers of the country to accept lower rates for the transportation of cheap and heavy freight, such as coal, than they receive for carrying high-priced articles, such as silk, it may not be amiss to notice that it is just that this discrimination should be made, even if a case should arise in which competition did not compel it.

"A ton of coal may represent the labor of one man for one day, while a ton of silk, worth five dollars per pound, may represent the labor of five thousand men for one day. It is just and reasonable that each of the two tons should pay to the common carrier the cost to which it is put from its transportation above the expenses which the company would incur if the ton were not shipped, and it is also just and reasonable that each shipment should make some contribution towards the fixed expenses of the road; but would it be fair and right that the one man engaged in coal mining should pay as much towards these fixed expenses as is paid by the whole five thousand men whose labor has resulted in the shipment of the silk?

"The question carries its own answer with it; and while the case above cited is an extreme one, it can be readily seen that the principle involved is one of general application, and that justice requires that so much of the freight charge as may be considered a contribution towards the fixed expenses of the road should be dependent to a great extent upon the value of the shipment; that is to say, upon the amount of labor that has been bestowed upon preparing it for market."



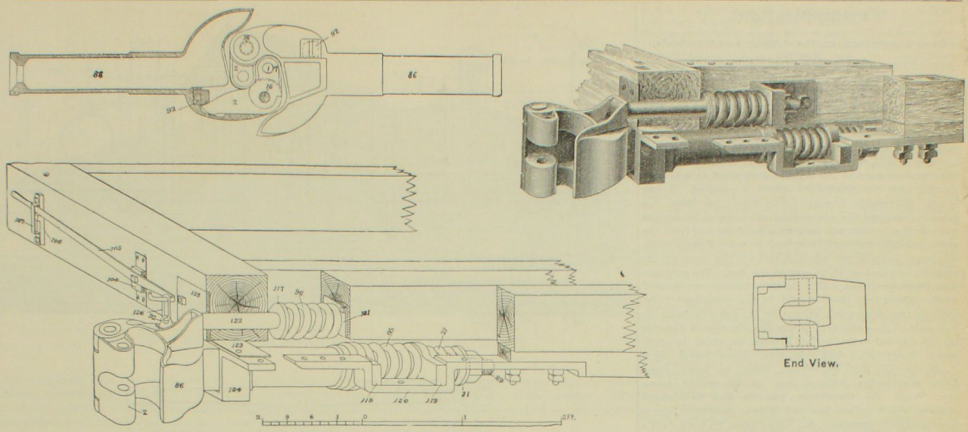
The Hilliard Car Coupler.

Car Couplers Selected by the Massachusetts Railroad Commissioners.

The accompanying illustrations represent the five freight car couplers selected by the Massachusetts Railroad Commission in compliance with the law passed by the Legislature of that State, May 8, 1884, requiring some one of the couplers so selected to be used by the railroads of the State on their freight cars, after the first of March next. The Commissioners, after testing a large number of couplers, have made a report, designating the following as coming within the category of "safety couplers" required by the law, viz.: The United States, Ames, Cowell, Janney and Hilliard.

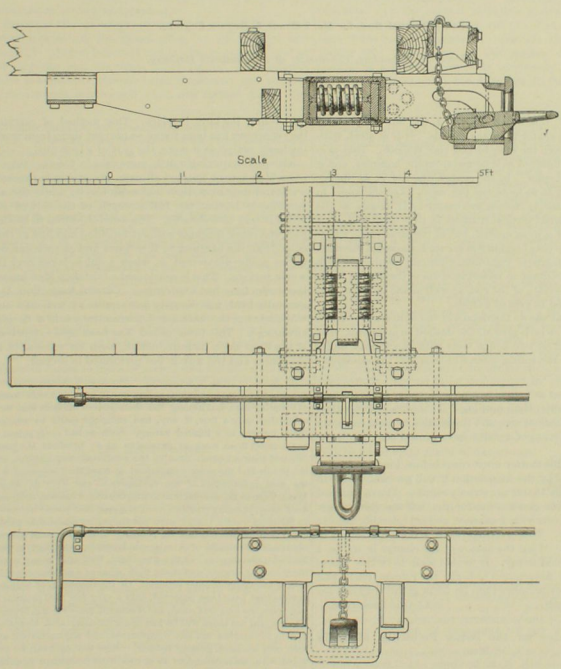
The Janney Coupler for freight cars (the one shown in the cuts) is similar in principle to the well-known Janney passenger car coupler, but simpler in its construction. Its leading feature is the pivoted hook or knuckle (2) and the key (9?2), which takes the place of a coupling pin. When the key is withdrawn by means of the hand-lever (100) the knuckle swings on its pivot and the cars are uncoupled. On the other hand, if the key is in place before coupling, the knuckles on opposite drawheads remain immovable, and on coming together will not couple, but when the keys are withdrawn and the knuckles opened, the latter upon coming in contact assume the position shown in the plan. Provision is made for coupling with link and pin by a hole through the hook for the pin, and also a portion of the hook cut away in the center to receive the link. The coupling is effected automatically, and does not require the operator to go between the cars.

The Cowell Coupling has a hook working horizontally, and will consequently couple with a similar hook on another car. The swiveling hook is kept in position by a small key, which can be drawn out by means of a lever operated from the side of the car, leaving the hook free to open and the cars to be uncoupled. Only the lever on one car need be used in uncoupling. This device can also be used with link and pin, as shown in the right-hand cut. The draw-bar and some of the other parts are made of malleable iron, but the head of coupling is made preferably of wheel iron

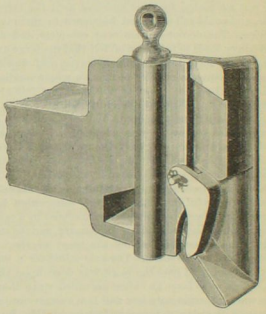


End View.

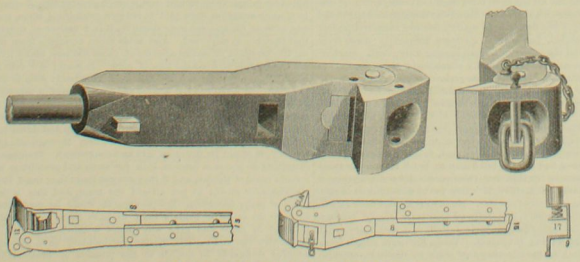
The Janney Freight-Car Coupler.



The Ames Automatic Freight Car Coupler.



The United States Automatic Car Coupler.



The Cowell Automatic Freight Car Coupler.

with a chilled face. The wearing face of the draw-head measures 8 × 4 inches. The Cowell platform and coupler for passenger cars is in use on a number of roads in different sections of the country, notably the Flint & Pere Marquette ; Cleveland & Pittsburgh ; Cincinnati, New Orleans & Texas Pacific ; Western & Atlantic ; and New York Central.

The Ames Coupler is well known, and is extensively used on the Boston & Albany and Lake Shore & Michigan Southern roads. The link has on its lower side a sort of lug which engages with the link of the next car, and is weighted at the rear end so as to stand level and approximately central in the draw-head. The link does not require to be held up by the hand in order to couple, and will in most cases couple automatically with link and pin couplings, if left askew in the hole so as to be shaken into position. In coupling with itself, either link will ride over the other and engage, and cars can be uncoupled without going between them by lifting the rear ends of both links by means of the chains which can be connected to cross shafts and operated from the sides of the cars. The draw-head is made of malleable iron.

The United States Coupler has a pin made with a flange on the front side, which prevents it from turning and increases its strength. A dog is secured to this flange and serves to prevent the pin being detached from the draw-head unless the dog is first purposely removed. When coupling automatically, the link enters the mouth of the draw-bar, pushes the dog and raises the pin, which then drops through the link into its place and the coupling is made. The pins are made of steel, drop-forged and the draw-heads of cast iron.

The Hilliard Coupler has a strong hook of peculiar shape pivoted near the end of each draw-bar. When the cars come together, one of the hooks drops automatically into a wide slot at the end of the draw-bar. The construction is such that one of the two hooks cannot fail to engage in the slot of the draw-bar opposite. The draw-bars are made of steel. The cars are uncoupled by means of a rod running across the ends of each car. The rod has a pulley-wheel in its center from which a chain passes to the hook. By turning this rod either way the hooks are lifted and the car uncoupled. There is no necessity for going between the cars in order to couple or uncouple.

Communications.

Some Suggestions on the Adoption of Standards.

To the Editor of the National Car-Builder:

The conditions under which standards are now adopted by the Master Car-Builders' Association and those which prevailed when its first standard was proposed are very different. So changed, indeed, are they, that the most casual observer can not fail to be struck by it. The first standard of any importance was the axle. At the Boston meeting in 1873, where this was discussed, more than half the members were at the beginning opposed to a 3½ inch journal with the dimensions which it entailed. It was almost universally thought to be much too large for practical use, and the representatives of one of the largest roads in the country saw no reason for departing from the more generally used size, 3¼ inches. In spite of these facts, the large journal was adopted, and for the moment the minority seemed to have carried the day. The explanation was very simple, and if the same course was pursued at the present time there would be less complaint in regard to the standards proposed by the Association to the railroads of the country. When the question of the size of the journal came up at Boston, as usual in such cases, every man had his own ideas based upon "experience," this experience being in most cases mere observation without any record except memory. While the discussion was in this ill defined state in which no one had any facts to present or figures to substantiate assertions, Mr. Garey came forward with a set of carefully conducted experiments, showing how much more rapidly the small journals wore out the brasses and themselves, than did the larger ones proposed. He gave the figures obtained from experiments made on his own road, quoted the well-accepted laws of friction, and gave most convincing proofs to show that a 4-inch journal would be the most economical size that could be adopted. He was supported by some who had used the large journals, and could tell what had happened to them in actual service. The demonstration was complete, and all who had heavy loads to take care of felt that the large axle was the best for them to use. Here, however, prejudice stepped in and presented a number of reasons why a smaller journal should be used. Most of the members felt afraid of the seemingly enormous wheel-fit that would be necessary with a journal 4 inches in diameter, and so a sort of compromise (3⅞ by 7) was adopted. To-day there is probably not a man on any of the great trunk lines, who was there and voted on the question, who does not wish that the 4-inch journal had then been selected.

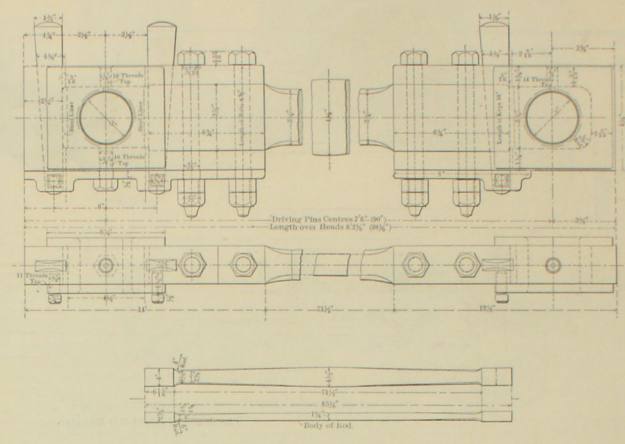
Facts and figures, with carefully made experiments, were so powerful that, although the Association had absolutely no power, its opinion was accepted by a very large proportion of the railroads in the country, and the standard axle of the Association is now the most nearly uniform thing in use on the roads. The axle called for a standard box and jaw, and here the work was done upon the plan which has to so large an extent prevailed since that time. The work of preparing a box and jaw was given to a committee, with orders to report as soon as possible, for everybody was waiting for it. So box and jaw were prepared as soon as the patterns could be made, and without time or opportunity for criticism. They had hardly been put in the sand, before the more careful and thoughtful men in the Association saw that these patterns had not had the same care and consideration as had been bestowed on the determination of the best size for the journal. There were points which had not received sufficient attention, and to be perfectly successful would have to be altered. There were at once departures from these standards, and some of them were made before the tool marks were worn from the first axles. The desire for uniformity is not a sufficiently strong inducement to cause any road or individual to adopt something new for the sake of having a standard, unless it bears the impress of sound mechanical judgment and commends itself as the result of careful investigation.

If to-day the master car-builders would give as much experiment and investigation to the subject of a standard freight car as they did to that of a proper size for a journal-bearing, and will make as good a presentation of the case, they will be able to accomplish, what seems to most people to be a moral impossibility, the adoption of a standard freight car by the leading roads of the country. A design so presented would be accepted on its intrinsic merits, and would need little argument in its favor. Indeed, there would be no necessity for voting on the basis of car representation. The fact that the design was the result of the combined experience of the master car-builders of the country, tested by their best men and subjected to their criticism, would be an argument sufficient to overcome all opposition, and even harmonize that spirit of individuality which is such an obstacle in the way of uniformity.

When a man comes home from a convention and his superior officers find that he has voted to submit to them an ill considered standard for adoption, they will simply laugh at him, and if it gets the necessary number of votes, will wait till the Association discovers and corrects its mistakes. In this way the representative loses standing with his superiors, and the standing of the Association is also impaired. I might cite many instances in which the Association has adopted standards without sufficient consideration, carried away by the idea that if it could only decide upon *something* and thus secure uniformity it would be a "great deal better than nothing." This idea, it is needless to say, is a mistaken one, and the results, or more correctly speaking, the want of results have proved that this is the case.

Reform in this matter must come before long, and if it is not initiated by the Association it will probably come in some other way that is not strictly regular. I have watched the course of the Association for the last fourteen years, studied its reports with some care, and am tolerably familar with its work. That a change must soon come seems to be very plain. What the nature of the change is to be I will not pretend to say. It would seem to be the wisest thing for the Association to begin the reform itself, and correct these evils rather than let them go till they call for heroic treatment.

AN OLD OBSERVER.



Steel Parallel Rod, for No. 2 Grant & Rogers Engines.

Cleveland, Columbus, Cincinnati & Indianapolis Railway.

The form of this rod is that of a flat bar deeper and thinner in the center than at the ends. It is of steel, with the body between the ends forged very smooth. This portion is left unfinished as it comes from the hammer, and is painted a steel color. In the center, the rod is 4½ inches deep, tapering to 3½ inches at the ends. The thickness in the middle is but 1½ inches, increasing to 1¾ inches at the stub ends. Great vertical stiffness is thus obtained at a point where it is most needed, but at the same place where the greatest vertical rigidity is secured, the rod is thinnest, and a certain degree of horizontal elasticity obtained, which is of great advantage in relieving some of the strains upon the pins. The sides of the rod, as well as the top and bottom, are forged to arcs of a circle.

The large cut shows the details of the stub ends. Three keys are used, which give all the desired adjustments. The straps are held by two ¾-inch bolts with check-nuts, under which is held the spring-piece which carries the set-screws for holding the keys in place. This method of carrying the set-screws has been found to prevent them from working loose, acting as it were, the part of a lock nut.

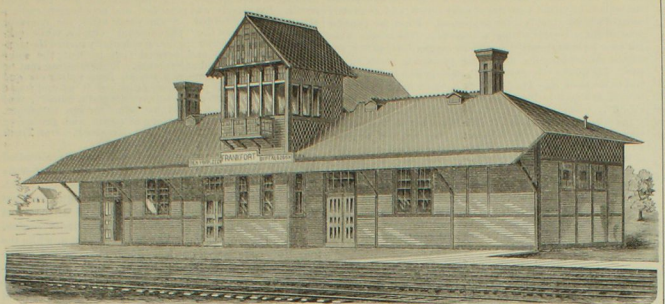
Although requiring a little more care in forging than a rod which is to be finished all over, the saving in machine work and time more than makes up for it, while the advantage of having the full strength of the skin of the metal is very considerable. The usual objection to leaving rods and other forgings without finishing and just as they come from the hammer is, that flaws and defects can not be so easily discovered as when a cut is taken over the whole surface. This is considered a mistaken idea among those who have had experience. Careful inspection, it is generally held, will discover flaws quite as well as a cut, while leaving the hammered surface intact is a decided advantage. This form of rod has been used extensively at the West since its introduction, both on account of its cheapness and the way it has performed in service.

Devices Needed for the Better Protection of Train Men.

To the Editor of the National Car-Builder:

Ever since the mileage of American railways reached well into the thousands the air has been filled with loud complaints of the so-called reckless manner in which railway companies slaughtered their employés and patrons. In many instances these complaints are well founded, but serious disasters frequently occur from causes beyond the power of human agency to prevent. Uncharitable people and the press usually characterize these disasters as "railroad murders," and the managers are subjected to unmerited censure. But as the mileage and number of trains increased, the casualties from coupling cars became more frequent, and the people became clamorous and talked loudly of forcing all railways to adopt a safe coupler. They claimed that because railway managers did not equip their cars with such couplers, they were indifferent to the safety of their employés, and, to quote an oft-used expression, "they had as soon kill a man as not." Seemingly there was a just ground for this, but these people did not comprehend the almost insurmountable difficulties to be encountered in producing the much desired coupler. Numerous models were exhibited about the country, and railway men were abused because they did not at once equip all their freight cars with this or that wonderful life-saving invention. Those innocent people were not aware that the models they saw work so nicely on an exhibition table were mere claptraps and wholly unsuited to the purpose designed. Practical railway men and officials of all grades in authority were as anxious as any one to provide a safe means of coupling cars, but among the thousands of devices that were submitted, only a few, if any, had sufficient merit to warrant their use even to a limited extent. Such as had some points to recommend them were so expensive as to preclude the possibility of their adoption, even by the wealthiest corporations, and the people and the press complained at what they supposed was the cold indifference of the managers to the lives of others. Many were so unreasonable as to suppose that a railway company must provide safety-couplers even at a cost that would involve it in financial ruin. Under such conditions no reasonable person could censure the officials for refusing to comply with the unreasonable demands of a misguided public, who had a very limited understanding of the situation. But, after many years, there came a change, and there were signs of a satisfactory solution of the safety-coupler problem. Of the thousands of coupling devices that have been patented, only a very few give promise of supplying the long-felt want, and if some of these are not brought into general use there will be just cause for complaint. Couplings now in the market are less complicated and objectionable, and their cost has been greatly reduced. Now that cars can be provided with safety-couplers at a cost little more than nominal, it is reasonable to expect that the roads will use them.

In respect to other safety appliances, the number of trainmen killed by falling from freight cars is much greater than it would be if more attention were paid to ladders, grab-irons, steps, etc., and as these fixtures are not expensive, it is a matter of wonder that they are so neglected. And aside from accidents from the unsafe condition or entire absence of those fixtures, many lives are lost by falling from the tops of cars. It would not cost as much to put a railing on 5,000 cars as it frequently does to kill one man. A small rod put around the outer edge of a car roof at a height of two or three inches would contribute greatly to the safety of trainmen and others who find their way to the tops of cars. If all the conveniences for going up and down the ends and sides of cars were made uniform throughout the country, it would be far more safe and convenient. Trainmen, in getting on trains in motion, look for steps and grab-irons on certain parts of the car, and if they are not there they must look elsewhere for means to get aboard the train, and this is the cause of many accidents. But perhaps it would be preferable to have no steps or ladders than to have them imperfectly fastened in place and give way under a man's weight, as is frequently the case. The master car-builders have already adopted standards in respect to the position of brake-staffs, ladders, grab-irons and width of running-boards, and it only remains for the roads to make use of them.



Station House, New York, West Shore & Buffalo Railway, at Frankfort, N.Y.

The engraving is a fair illustration of the prevailing tendency towards improvement in the style and construction of station-houses, and is a representative specimen of those already built by this road. It is not a large building, nor is it very elaborate or costly in its architectural features, but the design is very appropriate and gives to the structure an attractive appearance.

There are two waiting rooms on the ground floor, and between these are the ticket office, an office room and stairway. At the left-hand end is a baggage room, and at the opposite end the usual toilet rooms. The interior finish is handsome without being expensive, and consists of hard woods, ornamental brick, and stained glass. The olive green mouldings contrast agreeably with the olive tints and warm browns of the rest of the interior. This style of painted decoration is also applied on the outside to the panels and structural lines.

The roof is covered with metallic shingles, and projects so as to form a canopy over the platform, supported by brackets. In the central elevation above the roof, the signaling apparatus is located, and the dark line near the edge of the roof is a breaker to prevent the snow from sliding off. The name of the station is placed, as shown, in a position where it can easily be seen from the car window, also the distances to New York and Buffalo.

Another danger to which men are exposed is that of the deadly "frog." In moving along between cars among frogs and switches, their whole attention is given to keeping their hands, arms and bodies from harm, and their feet get fast in the "boot-jack" species of frogs, guard-rails, etc. Next to the coupler problem, a safety guard for frogs has been the most difficult to solve of anything in the line of safety appliances. Many devices have been tried to prevent this most horrible of accidents, but none of them have proved satisfactory, although some have been brought into extensive use. Suits are now pending for damages to persons that were injured at frogs that had been provided with so-called safety devices at considerable expense. A cheaper and more reliable protection is in urgent demand, and will, no doubt, be brought forward as soon as those in authority manifest so keen an interest in the matter as they do to secure a safe coupling device. It is to be hoped, however, that if it becomes necessary for legislative authorities to act in the matter, they will not follow the lead of the State of Michigan, with the wood blocking, which is only a partial protection to yard men and others, and is an element of danger to trains by getting split and filling the flangeway and causing derailment. Thousands of miles of track have been fitted with wood blocking that has disappeared, and a further trial of wood alone is useless. WM. S. HUNTINGTON.

The Ames Coupler.

To the Editor of the National Car-Builder:

I notice in your last issue a communication by Mr. T. B. Buchanan, of Denver, Col., on the subject of Car Couplers, addressed to the Master Car-Builders' Club, in which he says that the Ames coupler, as compared with certain other couplers, is "less dangerous where the common draw-bar is lower or of equal height, but more dangerous where the common draw-bar is higher than itself."

This statement is misleading, and in reply to it I would say that where the common draw-bar is of equal height with the Ames, or where there is a difference of several inches, the Ames coupling-bar will enter the opposite draw-bar without assistance. If the difference in the elevation of the two cars is greater than four or five inches, and the opposite car lower, the brakeman can make the coupling with absolutely no danger, as he guides the link downward by the lever at the side of the car. If the coupling has to be made with a car of a greater elevation, and the link has to be guided by the hand or a stick, the danger in using the Ames coupler is exactly the same as with the common draw-bar. At the time the present standard of elevation was adopted only 54 cars had been equipped with the Ames coupler. Its adaptation to the standard therefore was a contingency which could not arise except as to these cars—a contingency too remote to be taken into consideration. F. W. PARSONS,

Manager Ames Car Coupling Co.

Varnish on Natural Woods.

To the Editor of the National Car-Builder:

The question of making varnish stand on the outside of cars when finished, without painting, is one which has caused some discussion among car builders. Those whose long experience entitle their opinions to careful consideration say that there is no difficulty in making varnish stand on natural wood provided a suitable foundation is laid for it. Probably the best foundation that can be had is formed by filling the wood with a "straight" Zanzibar copal varnish and rubbing down. Three coats should be applied in this way. These should be followed by the two outside coats. One gentleman makes the statement (which is well substantiated) that in order to have the last coat durable it should receive a dull surface. That is, it should be "dulled" by a slight rub, which is merely sufficient to take off the glassy polish of the flowing coat. The theory for this does not seem to be clear.

The most reasonable suggestion so far made is, that the glassy surface is so hard as to prevent a proper drying of the varnish beneath. When this has been removed the varnish below hardens more equally throughout its substance. The apprehensions which have been felt in regard to the rapid destruction of varnishes on cars finished without painting appear to be unfounded in all cases where the wood has received proper filling. Where the foundation for the varnish has been imperfect, its durability will be slight, and we may expect during the next year to have widely diverse opinions on this subject, each one of which will be based upon practical experience. X.

Should Street Railways Build Their Own Cars and Tracks?

[BY AUGUSTINE W. WRIGHT, IN *American Railroad Journal.*]

The question has been propounded to me from time to time, "Do you think it advantageous for a street railway company to build its own cars?" My answer has been in the negative, and the question seems of sufficient interest to warrant an expression of my views more at length.

For what purpose is a street railway company organized? I will answer in the words of M. M. Kirkman, whose able works, although written for steam railways, should be read by every one interested in *any* railway: "In the operation of railroads the objective point of endeavor is the revenue that accrues from the business transacted. It is for this that the proprietors contribute money for the construction of railroads; it is for this that they are operated." All will agree that dividends for the stockholders is what we are after, and the company that invests in shops and machinery with which to construct its own cars hopes to increase thereby the said dividends. The principal reasons advanced for this policy are, either that the company can build *better* cars for the same money, or as good a car for *less* money. In my opinion this is a mistaken idea, and the companies find it to be so, after investing thousands of dollars in extensive plants. The company is organized to carry passengers, and the more nearly it confines itself to this business, the greater will be its profits. I do not believe it to be to the pecuniary interest of any street railway to enter the domain of manufacturers and compete with individuals or firms in building cars.

No one has a greater respect than I have for the ability, honor and zeal of the master mechanics of our railways as a body, but who can honestly say that if the same men were in business for themselves they would not accomplish more work at the same cost? It is proverbial that the laboring classes work harder for individuals or firms than for railway corporations. The individual has a direct pecuniary interest in watching every detail. He has a reputation to establish or maintain for good work, and competition will ordinarily prevent excessive profits. The individual engaged in manufacturing cars, as the years pass by, accumulates a wealth of experience from his extended practice. He has employés engaged perchance for years, working hour after hour, day after day, and month after month, on the *same work*. I saw such an employé recently in New York who had spent *twenty years* past on the same work. Over half a century ago, the importance of this fact was set forth by Charles Babbage, the great English mathematician. Permit me to quote Mr. B.: "Perhaps the most important principle on which the economy of a manufacture depends is the *division of labor* amongst the persons who perform the work. * * * A certain quantity of material will be consumed unprofitably, or spoiled by every person who learns an art; and as he applies himself to each new process, he will waste a certain quantity of the raw material or of the partly manufactured commodity. * * * Another source of the advantage resulting from the division of labor is, that *time is always lost from changing from one occupation to another.* * * * * The constant repetition of the same process necessarily produces in the workman a degree of excellence and rapidity in his particular department which is never possessed by one person who is obliged to execute many different processes. This rapidity is still further increased from the circumstance that most of the operations in factories when the division of labor is carried to a considerable extent, are paid for as piece-work. * * * When each process, by which any article is produced is the sole occupation of one individual, his whole attention being devoted to a very limited and simple operation, any improvement in the form of his tools or in the mode of using them is much more likely to occur to his mind."

These remarks I quote to street railways, whose equipment is comparatively limited. No single company needs new cars enough to warrant an investment in buildings and improved machinery equal to any of the large firms engaged in this business, and without this improved machinery, convenient and extensive shop room and arrangement, they cannot compete in the manufacture; but as a matter of fact, what president or superintendent of any street railway building its own cars, *knows the cost of the same?* The master mechanic, perhaps, keeps an accurate account of the labor and material used in building the new cars. He tells his superior officer that they are *better* cars and have cost one or two hundred dollars less than Smith or Brown offer to build the same cars for. But he has neglected to figure in the interest on the cost of plant, taxes on the same, wear and tear of tools, depreciation, etc. *This* all goes to repair account, and who can tell how much the latter would have been without the construction account? It cannot be compared with the reports of other companies because one must know, to judge intelligently, the *relative* condition of the cars, and the amount expended upon each. The only *real saving* is in the item of freight if the manufacturer is not located in the same city or town. I speak from experience when I affirm that as good cars, in each and every respect, can be purchased from the manufacturer, as are or can be built by any street railway company. It is undoubtedly necessary to maintain a repair shop, and as work is apt to vary therein in amount, it is no doubt wise for a company to build for its own use "open-cars" when such are used to retain its skilled labor and give it employment when otherwise the men would have to be laid off and might make other engagements; but one or two such cars would probably bridge over the slack times of twelve months. I believe that any street railway company engaged in the manufacture of cars is opening a by no means small "bung hole," and its "barl" will surely suffer.

Another matter is track construction. It has been largely the practice with street railways to build their own tracks, and the condition of their tracks to-day shows the folly of this system. Very few steam railways find it advantageous to lay their own tracks, and I am at a loss why street railways should pursue a different policy; but they seem to think that any ignorant man, although perhaps he has never seen a track laid, can do their work if he don't want more than $2 or $3 per diem. The lack of all mechanical skill evinced in the track construction of many of our street railways would be laughable if it were not so deplorable. I have seen tracks laid with the *rail-joints directly over stringer-joints.* I have seen a "butcher" cutting into a stringer for joint-chair, cut one end half an inch lower than the other end to bring the rail ends level, and insert a chip from the stringer between the chair and the rail! With such work it is strange that we hear an outcry against "poor tracks"? The labor is hired by the day, and nearly every one is interested, not in doing the best work in the least time, but simply in prolonging the job.

If the contractor was encouraged, the men would be more permanently employed; in a measure his interest and theirs would be identical in doing good work, and the company would get better tracks for the same, or less money than under the present system. As a matter of fact, few companies who own any tracks know *what* they cost by hundreds of dollars, because the expense is mixed up with repairs, etc. The supplies are taken from the storehouse or yard to a greater or less extent, and never appear in the cost of this particular track. These views might be enlarged *ad infinitum*, but I trust enough has been said to call attention to the matter, and the officials of all street railways will find it to the interest of their companies to consider well before entering into active competition with the manufacturer and contractor.

Hidden Flaws in Metal.

What is really needed, says the London *Builder*, is some system, could such be devised, by which those hidden flaws which the very best metal made by the very best process will sometimes contain, should be rendered patent to the eye of an inspector. Is there any chance of such a system being devised? It is clear that chemical tests are quite useless; they can tell nothing but the general composition of the metal. Electrical tests may possibly yet be used with effect. They were proposed some years ago, and have been revived lately by Prof. Hughes, the inventor of the microphone. With this beautiful instrument,

the "magnetic balance," he has proved that in wires or small pieces of iron, almost all peculiarities of the metal, including the existance of flaws, can be detected with ease and certainty. His invention has been freely given to the world, but heretofore the world (as usual) has been wholly indifferent to the gift. To far as we are aware, no railway or marine engineer has taken any steps with a view to ascertain whether a similar system might not be applied to pieces of large size, such as those required in actual work. Failing this, mechanical tests in a proper testing machine do not seem impossible. If the axle which broke at Penistone, before having been set to work, had been subjected to a sudden cross-breaking strain, similar to that which caused its destruction, but very much below what it should be able to support with safety, we cannot doubt that the resulting deflection or bending would have been far greater than if the axle had been sound. What we would suggest, therefore, is that all crank axles, or other pieces of metal called to fill equally important positions, should be tested by strains similar to those brought upon them in actual work, and that their deflections under those strains should be recorded. A few experiments would be sufficient to show clearly how great this deflection should be in the case of a sound and perfect axle; and if any specimen showed a deflection decidedly higher than the limit, it should be rejected as a doubtful quality. The expense of such a system would not be great when it once became a regular part of the manufacture of an axle; and it appears to us the only method by which a single faulty specimen can be weeded out from a batch of sound and satisfactory articles.

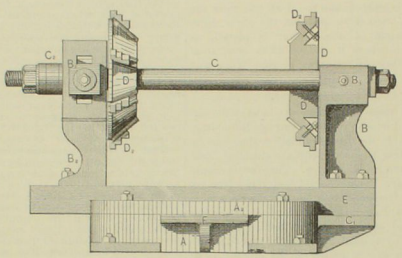


Fig. 1.

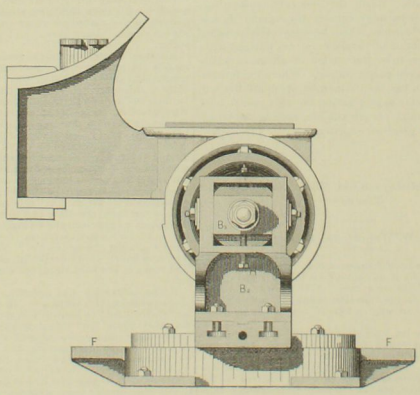


Fig. 2.

Hodgson's Cylinder-Planing Chuck.

The engravings represent a cylinder-planing chuck invented by Mr. J. B. Hodgson, who was for a number of years in charge at the machine shops of the Baltimore & Ohio Railroad, at Mount Clare, Md. The chuck is used for holding cylinders of all sizes during the operation of planing, and obviates the necessity for setting the cylinder more than once on the planer, the setting being practically automatic.

The chuck consists of a circular base A, which is bolted to the table of the planer, and carries upon its top the revolviag top A_2. This revolving top has a bed-plate E, on which there is one fixed head-stock B, and a movable one B_2, between which the cone chucks D D are placed on the spindle C. On these cone chucks the cylinders are held. The upper portion of the table A_2, together with the bed-plate E, revolves on a center fixed in A. The lugs F and C_1 have bolt holes and stops so as to permit the table to be turned a quarter of a revolution, and accurately squared without trouble in the adjustment. When the cylinder is bored out no further setting is necessary. The chuck, when put upon a planer, insures the cylinder casting being in line, and enables the cross-planing to be done by merely revolving the base. The spindle C is pivoted at B_4, the opposite end being carried to the block B_3. The headstock B_3 slides in or out on the base E, as shown in Fig. 2, in order to accommodate cylinders of different lengths.

The jaws D_3, on the chucks D, slide in and out on the cones to take cylinders of different diameters. They are held by short screws in slotted holes, as will be seen by the section at the right of Fig. 1. Fig. 2 shows a cylinder in place, ready for planing the valve seat. By a proper arrangement of the tools, all the planing on the cylinder castings may be done without releasing the casting from the chuck, thus insuring the work being done in line and square with the box. The diameter of the spindles is about 3½ inches and the distance between the cones, as shown in the cut, a little more than 24 inches. A greater distance than this may be obtained by taking off some of the washers shown at C_3, Fig. 1, and in moving the head-stocks B_3 back. The center of the spindle is about 16 inches from the bed E.

This device has been long in use at the above-named shops, and is highly spoken of by Mr. Cromwell, the Master of Machinery of the road, and Mr. Kalbaugh, the Master Mechanic. It saves much time and secures greater uniformity and accuracy than is possible under the old system.

Tricks of Steam Engine Indicators.

While the indicator comes nearest perfection of any appliance designed for ascertaining the true working of a steam engine, it is by no means to be taken as infallible. Occasionally very ordinary engines give extraordinarily good diagrams, and we have seen the card of one engine that apparently gave more pressure in the cylinder than in the boiler. An explanation of these eccentricities is not always easy, but we lately heard a skilled engineer relate how he detected the error in one instance, at least. Several years ago, in a contest between agricultural engines, at Syracuse, N. Y., one engine from which indicator cards were taken showed a 10-inch vacuum. As this was a surprise to all of the engineers and experts present, four different indicators were applied, all giving substantially the same result. Everybody was mystified, and no adequate explanation could be afforded. Some years after, the engineer who had charge of the "phenomenal" engine, while taking cards from another engine, accidentally turned the stop-cock partly around and noticed that he had the same result as was obtained at Syracuse. Remembering that he had used the same stop-cock for all four indicators and having it still in his possession, he looked it up and found the true cause of the extraordinary diagram, namely, that the opening had been closed by some foreign substance, thus preventing the free passage of steam and producing the same results as a partly closed stop-cock.—*Iron Trade Review.*

The above will be appreciated by all who have studied the cards produced by these charming but treacherous devices, although the precise nature of the accident which gave a ten-inch vacuum on a high pressure engine may not be perfectly clear. The most puzzling card we have met with in our experience was from a six-cylinder engine, in which the motion was taken from one piston, while the indicators were placed on the cylinder next behind. The card, at first sight, seemed to be from a pump with a cut-off. A long study of the indicator, rig, engine, and the card itself, at last solved the problem to the manifest relief of the builder of the engine.

Gondola Coal Car, Lehigh Valley Railroad.

The engravings represent a car designed by Mr. John S. Lentz, the Master Car-Builder of the Lehigh Valley road. For a long time the road had felt the need of cars that would carry heavy loads of lump coal that could be more easily dumped than formerly, and the coal prevented from choking the hopper so as to require breaking up, and a consequent loss of time in unloading. The car shown in the cuts was specially designed to obviate this difficulty, and is in many respects a great improvement over previous ones employed in the coal traffic of the road, and especially so in the facilities for dumping.

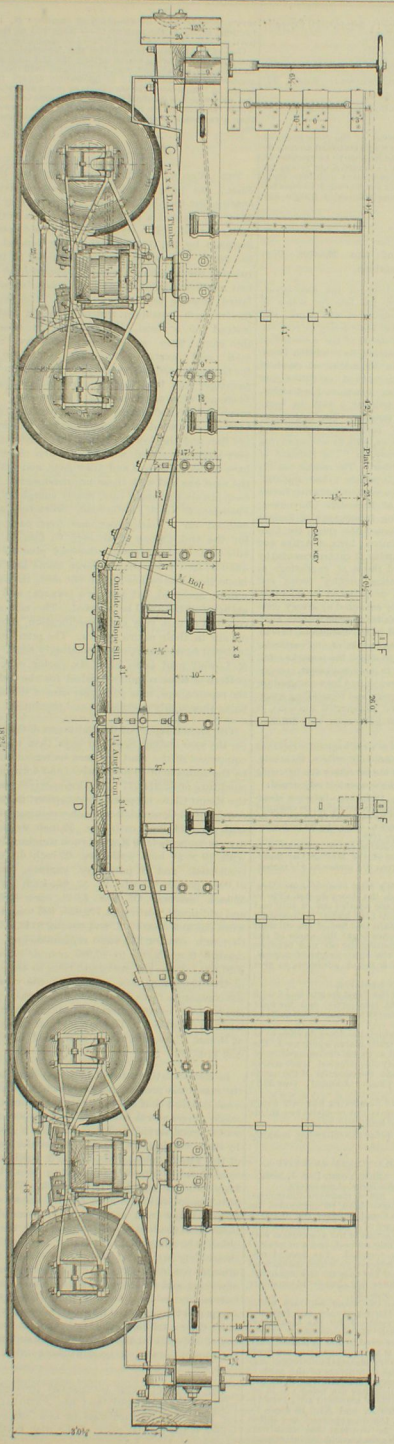
The body of the car is 26 feet long and 8 feet wide. The sides are 35½ inches deep. The hopper has a drop-bottom consisting of four leaves or doors. The opening is 6 feet 2 inches long by 4 feet 3 inches wide. The body is carried on the road's standard trucks for cars of 40,000 pounds capacity. Perfect freedom in dumping is secured by the slant of the hopper and the arrangement of the hopper doors, which are without chains and are held by button bolts. The presence of the chains in the hopper prevents the lump coal from dumping freely, causing stoppages and more than doubling the time necessary for emptying the cars.

Arranged as shown, the doors drop so as to afford a free opening, broken only by the cross timber in the center. The car dumps in actual practice in about 1½ minutes. The doors are dropped by putting a wrench on the heads F F of the button bolts, and turning them so that the buttons D D release the doors. In closing them, a hook is used to pull them up into place and hold them until the button is turned. When full, the car will carry 40,000 pounds.

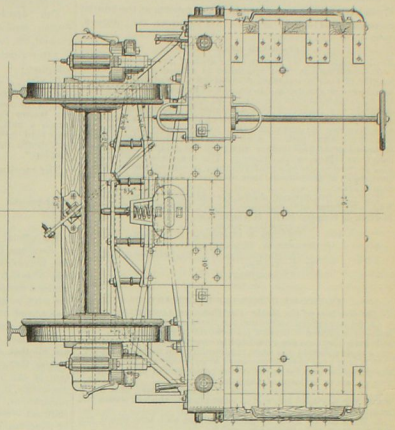
The frame consists of two side sills 4 by 10 inches, and a pair of center sills 8 by 9 inches. The end sills are of oak, 10 inches wide by 9 inches deep, tapered to 6½ inches wide at the ends and projecting 1½ inches beyond the side sills. The center sills are bolted together and pass between the timbers B B, to which they are bolted with ¾-inch bolts. Directly beneath these timbers are the draw timbers, which are 7½ × 4 inches. These have very little to do, as the shocks of buffing are taken by the dead-woods and dead-wood timbers as soon as the draw-spring has been compressed to the extent of 2 inches. The dead-wood timbers C C are 8 inches wide by 4 deep, laid flatwise, and extend from the bottom of the buffer blocks back to the bolster. On the outside of these timbers, two ¾-inch tie-rods secure the end sill and bolster together. The bolster is of wrought iron, 7 inches wide, and is secured at the ends by a pocket casting. This casting forms a seat for the sills, a saddle for the truss-rod, and a pocket in which the end of the bolster is held very firmly. The casting is fastened to the sills by four 1-inch bolts. The single needle-beam which crosses the center of the hopper is 4 inches thick, and is secured by a strap 1 inch by 4.

The sides of the car are so heavy as to almost deserve to be classified with the frame. They are 35½ inches high, and consist of 3 planks 3 inches thick, secured with 5 ¾-inch bolts going through the side sill, and 10 cast-iron keys 2 inches wide by 2½ high. In addition to these there are six posts, 3 × 3½ inches, on each side, which are fastened to each plank by two bolts. A side built in this way is amply stiff enough to carry the load without any aid from the truss-rods. Shrinkage in so great a width of timber, however, soon destroys its value as a truss. The corners are heavily strapped with iron, the two middle straps being 6 inches wide and the others 3 inches.

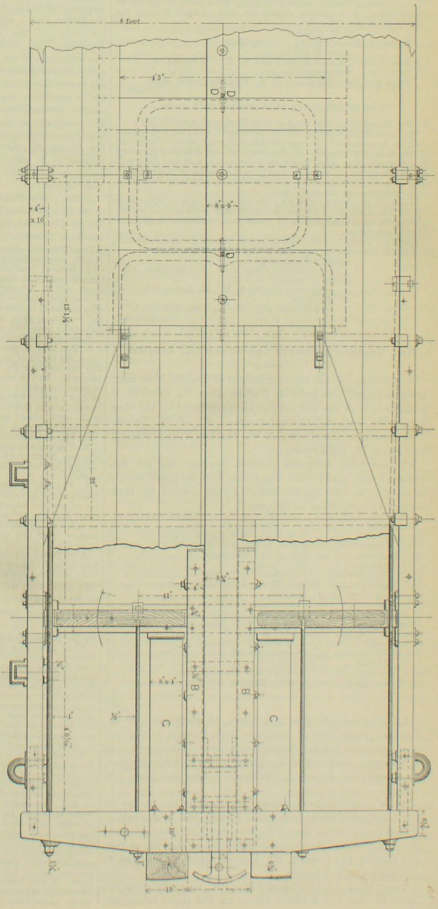
In the end view will be noticed a small spring placed beneath the draw-bar. The strap under the bar is bent into a pocket to accommodate it. Its object is to hold the bar in place when the car is coupled with another of the same height, but when the coupling is made with a low car it yields and permits the head to sag. In this way the draw-timbers and end sills are relieved of a heavy pressure tending to break them down, which even a bent link will not overcome. This device, though simple, has been found very effective. The spring is about 5½ inches high, and bears directly upon the under side of the draw-bar.



Side Elevation.



End Elevation.



Plan.

GONDOLA COAL CAR, LEHIGH VALLEY RAILROAD. CAPACITY, 40,000 POUNDS.

Built by John S. Lentz, M. C. B., Pemberton, Pa.

Master Car-Builders' Association Circulars.

The following circulars have been issued by Committees of the Association appointed to make reports at the annual convention to be held at Old Point Comfort, Va., June 9, 1885:

STANDARD DEAD BLOCKS.

To the Members of the Master Car-Builders' Association:

A committee has been appointed to submit to the next convention of your Association, detailed drawings of dead blocks to be adopted as standards. In order that the committee may have the fullest information concerning the subject submitted to them, members are requested to send copies of drawings showing in detail the form of construction of dead blocks, and the method of attaching them to cars which they use, and also to inform the committee what plan of dead blocks, in their opinion, exposes trainmen to the least danger and gives the greatest protection to cars from injury by concussions. The committee will also be glad to receive any other information, in suggestions relating to the subject of dead blocks, that members of the Association are able to give.

Replies to this circular should be addressed to Charles Blackwell, Chairman of Committee, Superintendent Motive Power, Norfolk & Western R. R., Roanoke, Va.

CHARLES BLACKWELL,
Norfolk & Western R. R. Roanoke, Va.
GEORGE W. DEMAREST,
Northern Central R. R., Baltimore, Md.
M. N. FORNEY,
73 Broadway, N. Y.
Committee.

TRAP-DOORS IN ROOFS OF PASSENGER CARS.

To the Members of the Master Car-Builders Association:

At the last annual convention the above committee was continued and requested to furnish plans at the next convention. The following questions are submitted to members with the hope that the answers thereto will assist the committee in making a report:

1. Is it in your opinion necessary to have doors in the roofs of our passenger cars for safety of the passengers in case of upsetting of cars or accident of any kind?

2. If doors are placed in roofs of passenger cars, how many would you advise to use, and at what place in the roof would you locate them.

3. What size of doors would you advise, and how would you arrange them to be easily moved?

4. How would you advise to put the doors in the roofs and make them tight, avoid leaking, and not deface the inside finish of car?

5. If you approve of such doors in passenger car roofs, will you please send to the Chairman of committee a plan for application?

It is expected that an answer of some kind will be given to this circular. The answer should be sent to F. D. Adams, the Chairman of the Committee.

F. D. ADAMS,
Boston & Albany R. R., Allston, Mass.
JOHN MACKENZIE,
New York, Chicago & St. Louis R. R., Cleveland, O.
SANFORD KEELER,
Flint and Pere Marquette R. R., East Saginaw, Mich.
Committee.

SIDE-DUMPING AND DROP-BOTTOM COAL CARS.

To the Members of the Master Car-Builders' Association:

The committee to whom the above subject was referred request that the members of the Association will send to the Chairman of the committee copies of drawings of the side-dumping and drop-bottom coal cars which they are using, and that they will also write to the committee and give the results of their experience and observation in the use of such cars, and state which, in their opinion, are the best kind.

Members who have noted any special advantages or objections which one kind of car has in comparison with others, are requested to report the results of their observations or experience to the Committee.

Answers to this circular and copies of drawings should be sent to Joseph Townsend, Chairman of the Committee.

JOSEPH TOWNSEND,
Chicago & Alton R. R., Bloomington, Ill.
JOHN HODGE,
Missouri Pacific R. R., St. Louis, Mo.
C. E. GORE,
Lafayette Car Works, Lafayette, Ind.
Committee.

New England Railways and Safety Car Couplers.

A meeting of the representatives of leading New England railways was held in Boston, Dec. 16, to select, if possible, one of the five car couplers approved by the Massachusetts Railroad Commissioners. Mr. J. N. Lauder was chosen President, Mr. J. W. Marden Vice-President, and Mr. J. M. Ford Secretary.

There were 16 delegates present, representing the following roads; and it was voted that the delegates should be entitled to vote on the bases of cars owned by their respective companies, as follows:

Delegates.	Roads.	Votes
James Denver	New York, New Haven & Hartford	5
D. C. Richardson	Boston & Maine & Eastern	5
Geo. Richards	Boston & Providence	2
J. N. Lauder	Old Colony	4
W. E. Chamberlain	Providence & Worcester	3
S. B. Updyke	New Haven & Northampton	2
Samuel Barrett	Concord	2
J. M. Foss	Connecticut Valley	4
F. D. Adams	Boston & Albany	8
John Coghlan	Boston, Revere Beach & Lynn	1
James K. Taylor	Boston & Lowell	5
J. G. Brady	Worcester & Nashua	2
Robert Hitchcock	Connecticut River	2
J. W. Marden	Fitchburg	6
J. P. Henney	New York & New England	4
H. H. Marshall	Boston, Barre & Gardner	1
		56

An informal vote was first taken to ascertain the individual preferences of delegates with respect to the five couplers, each delegate casting one vote. The result was as follows: In favor of the Ames, 8 votes; United States, 3; Cowell, 2; Janney, 1; Hilliard, 0, two delegates not voting.

After considerable discussion in regard to the merits of the Ames and Cowell couplers, a formal ballot was taken, to determine which one of the five should be recommended for adoption, the result being as follows: For the Ames, 22; Cowell, 15; Janney, 11; United States, 6; Hilliard, 0; two delegates not voting.

The "United States" and "Hilliard" were then stricken from the list, and a ballot taken on the three remaining couplers, the result being as follows: Ames, 22; Cowell, 22; Janney, 11; one delegate not voting.

A second ballot gave the same result.

The "Janney" was then dropped from the list, and a fourth ballot taken, resulting as follows: Ames, 22; Cowell, 22; twelve delegates not voting.

After further discussion, the following resolution was adopted:

"*Resolved*, That we, as representatives of the New England railroads, realizing the importance of a single standard automatic freight car coupler, respectfully ask the Executive Committee of the Master Car-Builders' Association to devise some means by which a national convention of representative members from each road in the country, with power to act, be called, to consider and decide upon the adoption of some automatic freight car coupler."

The meeting then adjourned.

Eighteenth Annual Report of the Master Car-Builders' Association.

The official report of the proceedings of the Association at Saratoga last June, was received too late for notice in our December issue. It forms a volume of 216 pages, and may be said to comprise everything that is necessary to give the reader a complete idea of the present status of the Association, the work it has in hand for its next meeting, its condition financially, and of its previous action in the matter of standard forms of construction. The typographical execution and arrangement of the matter, including numerous illustrations, are all that could be desired, and indicate a skill in bookmaking that can only be acquired by practice. The larger portion of the report is made up of committee reports and discussions, including the elaborate paper, with its accompanying illustrations, presented by Mr. Forney, on "The Relation of Railroad Wheels and Rails to Each Other." The residue consists of important supplementary matter pertaining to the organization and working machinery of the Association, including Letter Ballots; Minutes of Proceedings of Executive Committee; Standards Adopted; Rules Governing Interchange of Freight Cars, and a list of roads that have adopted the rules; the Constitution and By-Laws of the Association; Lists of Active and Representative Members, with the number of cars represented by the latter class; also twelve folded sheets of engravings at the end of the volume, illustrating sundry forms and dimensions that have been adopted or proposed for adoption. The usefulness of the report is greatly enhanced by a very complete analytical index, enabling the reader to refer without hunting to any particular topic mentioned in the discussions, in committee reports, or otherwise, or to the remarks of any particular speaker irrespective of the subject to which the remarks refer. We venture to say that if this report in its arrangement, comprehensiveness, and convenience of reference, had been designed for the special purpose of satisfying inquiry and forestalling letter-writing as to what the Car-Builders' Association has done, is doing, or intends to do, it could not have been very different from what it is.

As the proceedings of the convention were very fully reported in the CAR-BUILDER last summer, we need not refer to them here. We give, however, from the report of the Secretary the following results of letter-ballots transacted since the convention adjourned:

Dead-Blocks.—That the distance, 12 inches, between dead-blocks, recommended at the 16th annual convention, be changed to 14 inches; that the length over all be changed from 28 to 30 inches, and the distance from center to center be 22 inches instead of 20. Adopted; yeas 293, nays 106.

Standard Axle.—At the same convention of the Association, it was proposed to increase the diameter of the Master Car-Builders' Standard axle, in the middle, from 3¾ inches to 4¼ inches. Adopted; yeas 340, nays 63.

System of Lettering and Numbering Fast Freight Line Cars.—1. The half of sides of cars on which the doors do not slide to show the name of the Fast Freight Line (spelled out in full) and the car number (in the Fast Freight Line series) immediately below it. In the same panel and within two feet of the sill shall appear (in letters not less than inches high) the name of the railroad company owning or contributing the car, and between the name and the sill shall appear the light weight of the car, with such other information as it is found advisable to give in connection with same.

2. The doors should have no marks whatever.

3. The ends to show the initials of the "fast freight line" with the car number (in the fast freight line series) and the light weight just below them; no other marks will appear on ends of cars.

4. The half of sides of cars on which the doors do slide to be reserved for advertising symbols or trade-marks where used. The use of profuse lettering in this panel is to be discouraged, however, and it is recommended that only the simplest trade-marks or advertising signs should be used; the capacity of the car to appear near the sill in the same panel. Adopted; yeas 298; nays 93.

A proposed system of lettering and numbering box-cars not in fast freight line service, failed to receive the requisite two-thirds vote, and was not adopted—the vote being 247 to 151.

In connection with the above, we print the following recently issued circular:

STANDARDS OF THE MASTER CAR BUILDERS' ASSOCIATION.

NEW YORK, Dec. 1, 1884.

To the Members of the Master Car-Builders' Association:

Your attention is called to the list of standard dimensions, forms of construction, etc., which have been recommended by your Association, and which will be found on pages 180 of the Eighteenth Annual Report, a copy of which is sent herewith. At the last Convention the previous action of the Association with reference to standards was carefully revised, and a number of errors and discrepancies were then rectified. The needed corrections have been made in the list referred to, which includes all the standards that the Association has thus far recommended, and it is hoped that members who have not already adopted any or all of them will do so as early as possible.

It is also of very great importance that those who are under the impression that they are using the dimensions and forms of construction which have been prescribed by the association should compare their practice with the descriptions of the standards as published in the list referred to and in plates VIII to XII, appended to the report. If such comparisons are made there is reason for believing that very material differences may in some cases be found between the dimensions of the parts in use and those specified by the Association. All who think that the journal bearings and boxes which they are using are in accordance with the Master Car-Builders' standard are advised to compare their patterns with plates X. and XI. In some instances, when this has been done, the discrepancies and differences in size have been found to be so great that what were nominally standard bearings of one road would not interchange with those used on another. The same thing is often true of screw threads, and the attention of members is, in this connection, called to the resolution on page 169 of the annual report.

One of the main objects which the Association aims to accomplish is "to bring about uniformity and interchangeability in the parts of railroad cars." This end will be defeated if members either knowingly or ignorantly depart from or attempt to "improve" the standards or make alterations in them. An axle which is one-half inch longer or shorter than the length which the Association has recommended is no more a standard than a yardstick would be which was that much too long or too short.

LEANDER GAREY, President.
M. N. FORNEY, Secretary.

THE WASON MANUFACTURING CO., at Brightwood, Mass., are now completing the last of five passenger coaches for the Jacksonville, Tampa & Key West road. They are painted a sage green, which is very handsome under varnish. The style of the outside decoration was designed by Mr. G. W. Bentley, the General Manager of the road. It consists of a gold stripe 1½ inches wide, running the length of the car, 12 inches from the bottom, and another similar stripe five inches below the letter-board, crossing the window panels. This shows well on the two-inch sheathing, which is put on with a V-groove instead of a bead. The design is simple and at the same time stylish and effective. A baggage, mail and express car has just been completed for the same road. The company has also under way four passenger and two baggage cars for the Panama road. These are what are known as "strike cars," and will be taken down for shipment. They have heavy double posts between the windows, but no window panels. The roofs are flat, and the lower part of the windows, which are very large, are closed with blinds only. These cars are to have Miller platforms and draw-gear, and will be the first the road has had with these improvements. In the paint shop are six passenger cars, nearly completed, for the San Francisco & North Pacific road. Work has just been commenced on a parlor car and four passenger coaches for the Old Colony road, each 60 feet in length. The sills are of long-leaved Georgia pine of a superior quality, free from shakes, large knots and sap. In the inspection, one corner sap, if not more than six feet long, will be accepted, but not two corners; and if the sticks are ten feet they will be rejected. The sills now in hand conform to this very rigid specification, showing no sign of sap in their entire length. The price for such choice material is, of course, correspondingly high. The Boston & Lowell road is to have six parlor cars of the same pattern as those recently finished for the Old Colony. In the repair shops, nine passenger cars of the latter road are being thoroughly overhauled and repainted.

THE annual report of the Baltimore & Ohio Railroad Co. for the year ending Sept. 30 says that the rolling stock equipment of the road has been increased during the year by the addition of 40 locomotives and 4,048 cars, at an expenditure of $2,274,277. The locomotives were all built at the Mount Clare shops of the company, in Baltimore, and consist of 13 Consolidation, each weighing 107,250 pounds, with 20 × 24 inch cylinders, 50-inch driving wheels, 8 drivers connected; 19 Moguls, each weighing 98,000 pounds, with 19 × 24 inch cylinders, 60-inch drivers, 6 wheels connected; and 8 passenger engines, each weighing 91,000 pounds, with 19 × 24 inch cylinders, and 69-inch drivers. Of the 4,048 cars, 3,656 were new and additional, costing $1,772,023; 396 were to replace cars worn out and destroyed, and costing $142,554; 513 received thorough repairs, 233 were repainted, and 177 were increased from 26,000 to 40,000 pounds capacity, costing $187,660. These extensive additions to the car and locomotive equipment were made with the view of keeping the company's force employed, and to take advantage of the reduced cost of materials resulting from the general business depression. The new circular passenger car shop, at Mount Clare, which was completed in February last cost $100,472.

IN respect to the value of files that have been re-cut by the sand-blast process there is much diversity of opinion, some contend that files so treated are practically useless, while others affirm from practical experience that they will do good service and that their life is greatly prolonged by the re-cutting. Mr. H. D. Gordon, the Master Mechanic of the Philadelphia, Wilmington & Baltimore road, has a sand-blast machine for sharpening files which he keeps busy for about two days in the week. The man in charge of it has orders to run it on certain days long enough to keep dull files from accumulating. Instead of replacing them from the tool room, the men take them to the machine to be sharpened. Files that are so dull that in most shops they would be thrown away, are in five or ten minutes put in condition to cut brass apparently as well as new ones, and according to Mr. Gordon's experience, they last nearly as long as new files. Usually they can be sharpened two or three times. The cost is almost nominal. Only a trifling amount of steam is used, and the labor of one man for the time named is sufficient to keep all the files in the shop in good working order.

THE CAR-BUILDERS' DICTIONARY (revised and enlarged edition just published) and the NATIONAL CAR-BUILDER for 1885, will be furnished to new subscribers for $3, which is the regular price of the new edition of the Dictionary.

NATIONAL CAR BUILDER

PUBLISHED MONTHLY
BY
R. M. VAN ARSDALE,
MORSE BUILDING.....NEW YORK.

JAMES GILLET,
WM. E. PARTRIDGE, } Editors.

JANUARY, 1885.

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EDITORIAL ANNOUNCEMENTS.

Addresses.—*Business letters should be addressed, and drafts and money orders made payable, to* THE NATIONAL CAR-BUILDER. *Communications for the attention of the Editor should be addressed* EDITOR NATIONAL CAR-BUILDER.

Advertisements.—*Nothing will be inserted in this journal for pay,* EXCEPT IN THE ADVERTISING COLUMNS. *The editorial department will contain our own views and opinions; and the rest of the reading matter, aside from advertisements, will be such as we consider of interest to our readers.*

Contributions.—*Articles relating to railway rolling stock, construction and management, and kindred topics, by those who are practically acquainted with these subjects, are especially desired. Also early notices of changes in railroad officers, organizations and names of companies.*

Special Notice.—*As the* CAR-BUILDER *is printed and ready for mailing on the last day of the month, advertisements, correspondence, etc., intended for insertion, must be received nor later than the 25th day of each month.*

SUBSCRIPTIONS *to the* CAR-BUILDER *will be received, and opies kept for sale, at the following places:*

A. WILLIAMS & CO., 283 *Washington St., Boston, Mass.*

L. SCHAFFNER, *Cigar and News Dealer, Grand Pacific Hotel, Chicago, Ill.*

WILLIE H. GRAY, 306 *Olive Street, St. Louis, Mo.*

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WELDED BOILERS.

There was some discussion upon this subject at the November meeting of the Society of Mechanical Engineers, and the discussion was supplemented by an informal interchange of views among the members, in which opinions both for and against welding were vigorously maintained. We are unable to give even an outline of what was said, and only refer to the discussion as showing the interest which the subject is exciting among engineers.

The general objection to welded seams is on account of the uncertainty which attends the making of the weld, but it was gravely urged by one of the members of the society that in case of a defect in such seams it would be impossible to detect it. It may be said that those who are most strongly opposed to welded seams are familiar with riveted work only, and have not paid sufficient attention to what has been done in the matter of welding, the many advantages of which are undeniable. But before considering these, it may be well not to lose sight of the fact that a iveted seam is not perfection. Its defects are not all visible to the eye of the inspector, however careful he may be in searching for them in all the stages of construction. Rivets may not fill the holes; they may be hammered cold, and holes may be punched out of line and may not match. The drift-pin may have been used until the iron is very much injured, plates may be scored in calking, and after the seam has been made as perfect as possible, it represents but a small proportion of the whole strength of the plate. Welded seams, on the other hand, may be made nearly as strong as the plate. They present a fair surface inside and out. In this respect alone they are a great improvement upon riveted seams with their projecting rivet heads and lapping edges of the plates, both of which invite corrosion, and where the scores left by the calking tool are often deep enough to be regarded as incipient fractures. When sheet planers are not used the under sheet is usually badly scored in trimming. The welded seam resists the strain put upon it without any tendency to distortion, while the ordinary forms of riveted joints, when strained, almost always tend to bend the plates. The theoretical advantages of welding are so manifest, and the objections to riveted joints so great, that a careful consideration of the feasibility of welded boilers appears to be necessary.

It is a fact not generally known that boilers of this kind have for years past been made in England, and that the art of welding sheet metal has reached a degree of perfection in Europe that is quite unknown in this country. In England, heating by steam is the exception, while hot water heating is the rule, the apparatus for which is very perfect and complete. One of its marked features is the use of welded boilers of almost every imaginable shape and complication of heating surface, and of all sizes.

These boilers are made entirely without rivets except where nozzles are put on to make pipe connections. They are also made to stand all sorts of pressures and are carefully tested by the makers before they are put into service. One firm alone, in one of the interior towns of England, makes some 50 or 60 different styles, the greater portion of which are very complex in form. One of the most popular forms is not unlike a locomotive fire-box, the furnace surrounded by thick water-legs, but having no barrel. In front, a fire-door comes through the leg, and above the crown sheet a flue passes from the front to the back, below the water level. Two flues, one on each side, pass lengthwise through the water-legs. The entire boiler is made without a rivet and every seam is welded. Another form made in the same way has a deeper space over the crown sheet, and four flues passing horizontally from front to back over it. The two lower flues stop short of the back end and are turned down into the fire-box or connected with an up-take. A water tube crosses the back-end of the fire box. The smoke goes up from the fire through the double up-takes to the lower row of tubes, and then returns to the chimney through those above. Forms like these, and others of much greater complexity, are made and sold at prices but little higher than those of cast iron. Such a boiler as the one first mentioned, 60 inches long by 39 high, and perhaps 36 wide, is sold for $235. The second style, 6 feet long, 3 feet high and 2 feet wide, is listed at $360. These prices are rather above the average charged by manufacturers for other styles. They show, however, what can be done in a commercial way in boilers with plates varying from 5-16 to ¼ of an inch in thickness. Americans who have seen and carefully examined them, admit the perfection of the workmanship.

In this country great advances have been made within a few years in the art of welding boiler plate of all kinds. With the aid of gaseous fuel still further advances may be expected. Already much difficult and beautiful work has been performed, and bottles, can-buoys, gas-holders and cylinders have been welded up, which, under several tests have shown great strength and demonstrated perfect construction. It has been stated on several occasions by those who are doing such work that a locomotive fire-box complete, with all the joints welded and ready to put into a boiler, can be furnished cheaper than it can be riveted up. The statement is a remarkable one; but we have no reason to doubt it. The only reason why welded rings for locomotive shells are not in the market seems to be that they have not been called for. Builders are apparently more willing to risk the dangers which they know and fear in the way of faulty seams, than to try a new mode of construction with which they are unacquainted. It may be years before there is a general introduction of welding in the place of riveting, but it is as certain to come as that we shall continue to use steam boilers. The advantages which will accompany the introduction of this improvement are too numerous to be recapitulated here. They will be appreciated only as builders become familiarized with them.

NEED OF REFORM IN THE PATENT OFFICE.

For years past a great deal of complaint has been made about the manner in which the Patent Office is conducted. The complaints are specific and are universally admitted to be well founded, yet little or nothing is done in the direction of reform. If the yearly surplus paid by the office into the Treasury, and derived from the excess of receipts over expenditures, were a fair criterion of efficiency, there would, perhaps, be less ground for complaint. But the truth is that the revenue earning capacity of the office is no such criterion at all, for the reason that the granting of patents was never intended to be a source of revenue to the government, and in the nature of things cannot be, without gross injustice to the inventors of the country. If the aggregate benefits accruing to whole number of inventors to whom patents have been issued are taken as an index, the efficiency as it strikes us would not be very remarkable.

It must be conceded that our patent laws are liberal, and in the granting of patents they are carried out in a liberal spirit, otherwise it would be difficult to account for the accelerated annual increase in the number granted from 435 in the year 1827, to 22,216 in 1883. It is a question whether this excessive liberality under the present system will not eventually bring the system into thorough disrepute. The mere fact that an invention is covered by a patent is nowadays no evidence that it is either new or useful, and its validity is practically determined, not by the grantors, but by the courts in an issue of litigation. Its commercial value depends upon this test, and until the test has been applied the purchaser must incur a risk in the buying of a patent that necessarily lowers the estimate of its intrinsic value and inspires distrust in the capacity of inventors generally.

But the great trouble now is the inability of the department to cope with the accumulating work, arising from an insufficient force, lack of room and the meagre salaries allowed. The recent report of the Commissioner states that on the 30th of last June there were 9,186 applications for patents awaiting action, as against 5,087 at the same date in 1883. It is not difficult for the great army of inventors in the country, as well as manufacturers and business men generally, to see the incongruity of an accumulating revenue from patents and the vexatious delays in disposing of pending applications. The average annual surplus from patents for the five year ending Dec. 31, 1883, is reported to be $286,992. This is not a burden imposed on the people by general taxation, as an enlightened member of the House Committee on Patents a few years ago supposed it to be. Every dollar of it is paid by inventors, and is a direct tax upon them. In order to make the Patent Office merely self-sustaining it is not necessary that there should be a general reduction of fees, but there should be greater liberality in disbursements in ways that will give inventors the worth of their money and save the time wasted in delays.

There is also an increasing need of an accurate classification of American patents, so the progress of invention in any particular line can be readily traced, and if we rightly remember, an appropriation of the niggardly sum of $10,000 was made for this purpose a few years ago, and a corps of men put in training for abridging, classifying and indexing. The money was, of course, soon expended, and as Congress refused to appropriate any more, the amount expended was practically thrown away. The difficulties attending the prosecution of a work of this kind must necessarily increase the more it is delayed, and unless some decisive measures are taken to carry it forward the interests of inventors and manufacturers and the industrial prosperity of the country must be injuriously affected.

PASSENGER CAR HEATING.

In no country in the world where the range of temperature in winter is similar to that of our Northern States, are railway cars as satisfactorily warmed as they are with us. Whatever discomfort is complained of in this respect arises more from too much warmth than from too little. It does not follow, however, that because there are individual complaints among passengers of being too warm or too cold when traveling in cars, the methods for heating are essentially defective. It is possible that all the requirements involved in perfect system of car heating can only be met by one particular system or apparatus, and it is also possible that they may be equally well provided for by different methods. This is the problem that is now in process of being worked out. It is evident that a very large proportion of way train cars, or what are termed ordinary coaches, will continue for a good while yet to be warmed by stoves of various styles and patterns, and which are designed more or less to promote ventilation.

But the time has come when parlor and sleeping cars, the occupants of which are presumed to be more susceptible to variations of temperature and imperfect ventilation than the general run of people who ride in railway "coaches," so called, must be provided with methods of heating that are free from the objections that are urged against stoves. Heating with steam and hot water has been tried in various ways, some of which have proved very successful. But there is still a demand for something better and more complete to meet the requirements of the best passenger service, and without intending any disparagement to the systems now in use, we think the demand will be met in spite of the many conditions imposed by an exacting traveling public. The first and all controlling consideration is safety. There is nothing very exacting or fastidious about that. Nobody wants to be roasted in a wreck—Spuyten Duyvil fashion. But a great many people do want calorific, atmospheric and refrigerating comforts in quantities so variable at different times, and also at the same time, that it is obviously impossible to perfectly adapt heating and ventilating arrangements to the individual feelings, whims and notions of a carful of passengers.

The recent discussions upon the subject, and notably what was said at the November meeting of the Western Railway Club, in Chicago, indicate that for the heating of the better class of passenger cars, two conditions are getting to be regarded as paramount and indispensable, namely, each car must be heated independently, and the fire must be outside of the car and not inside. Any system which provides for these requisites, and affords the means for a perfect control of the heat so as to adapt it to the state of the weather, and at the same time keep the car properly ventilated, is the one which is likely to supersede the use of stoves or other apparatus which require the presence of fire inside the car, no matter how well

protected it is against the contingency of collisions and overturns. The plan which has been devised by Mr. H. H. Westinghouse, of Pittsburgh, and which was described by him at the aforesaid meeting at Chicago, appears to meet the essential requirements to which we have referred. The heat is distributed through the car by steam pipes of large radiating surface, the condensation returning by gravity to the generating boiler which is suspended underneath the car. The admission of heat is regulated by registers, and the boiler, not being at any time full of water, is safe against overpressure or danger of bursting from freezing. The consumption of fuel is estimated at 175 pounds of coal in 22 hours, the amount of attention required during this time not exceeding 15 minutes. The cold air is let in over the radiating pipes, by which it is warmed to an even temperature, and the warm air it displaces passes out at a top ventilator. The capacity of the heater is more than sufficient to make good the loss of warm air through the exhaust outlet.

Mr. Westinghouse says that his system is in use on eight prominent roads. This ought to insure a practical test of its merits and determine to what extent it is likely to supersede the various kinds of stoves and steam and hot water heaters now in use. It has the great advantage of saving the room required for inside fire receptacles, and the boiler and furnace attachments underneath are so strongly constructed that the chances of breakage or of tearing them away so as to liberate and scatter the fire, are comparatively slight. Yet, promising as this system appears to be, so far as an idea of it can be formed from a mere description, we are not unmindful of the fact that within the past ten or twelve years many ingenious devices have been tried that were equally promising, so far as reported tests were concerned, but the most of which have been forgotten, while some have been used only to a limited extent. Upon cars of local and way trains stoves are still popular with the public, in spite of the drawbacks and dangers inseparable from their use. As long as fuel is abundant they can be depended upon to keep railway passengers warm in cold weather, especially the large proportion of them who prefer to be warmed a little too much than not quite enough. To displace all the patented varieties of wood and coal stoves, and abolish them forever from railway cars, will, in our judgment, require a more simple, complete, economical and satisfactory method than any that has yet been introduced upon parlor and drawing-room cars.

THE MASSACHUSETTS CAR COUPLER SELECTION.

On another page will be found engravings and brief descriptions of the five car couplers approved by the Railroad Commissioners of Massachusetts, in accordance with a law passed by the Legislature requiring all freight cars constructed or purchased by the railway companies of that State, or cars the draw-bars of which shall be repaired for use on such roads, to be equipped after the first of March next with some one of the couplers so approved.

So far as the selection is concerned, this is a positive, but by no means a final step in the direction of uniformity. After careful and thorough testing, a discrimination has been made and the preference given to five couplers only, thus reducing the competition to this small number, so far as relates to Massachusetts roads. Each road is at liberty to choose from the lot, and it remains to be seen what approach there will be toward unanimity in making the choice. If all the roads should concentrate upon one of the couplers, the vexed question would be practically settled so far as the jurisdiction of this one State is concerned. An attempt has been made to do this, as will be seen by the proceedings we print in another column, of a meeting held in Boston consisting of delegates representing sixteen New England roads. After a preliminary ballot, three of the five couplers that received the smallest number of votes were dropped from the list, and the choice narrowed down to two—the "Ames" and "Cowell." The vote upon these resulted in a tie, the delegates voting on the basis of the number of cars owned by their respective roads. A second ballot also resulted in a tie, the number of votes being the same. So far as the action of the delegates was determine whether one or more of the five couplers were to be selected, it was unfortunate that the meeting should get caught on the dead-center at the critical point of deciding between two of them, and be compelled to adjourn in such a helpless way. Assuming that the roads represented will abide by the result, we would suggest that the delegates come together again and take another ballot, and in case of a tie, settle the matter by a toss-up and have an end of it. If the voting is simply on the merits of the two couplers, aside from any extraneous considerations, and if the merits are balanced as exactly as the votes already taken seem to indicate, there would not be much lost or gained by tossing up, although such a proceeding might border a little on the ludicrous. What is wanted in the present emergency is a decision as to which of the five couplers shall be the legal one. Such coupler, however, is required to be placed only on new cars built or purchased by the roads and upon such as have their draw-heads repaired. The progress towards uniformity even upon Massachusetts cars would necessarily be slow, while the great number of interchange cars coming into the State from foreign roads would be exempt from the operation of the law. Still, in view of the rival interests of inventors and patentees, and the mechanical difficulties in the way of determining which is the best coupler, it is something gained to have an authoritative selection made after such prolonged agitation. It brings the final solution a little nearer, if the problem is really capable of being solved.

It seems to us that the only feasible plan for settling the more important question of selecting a coupler for all freight cars, is one that has of late been frequently broached; and that is, to call a national convention of delegates representing all the principal roads in the country, whose business it shall be to consider the coupler question exclusively. If no agreement is reached after a prolonged session, and as much experimental testing as is practicable under the circumstances, it will warrant the conclusion that a universal standard coupler that will be recognized and used upon all roads is a thing that is not to be had at this present stage of railway progress.

DAYLIGHT IN RAILWAY SHOPS.

The necessity of reducing the cost of railway operation at the present time is so imperative, that nothing seems too trivial to escape attention where a saving can be made. In the matter of lighting shops, however, master mechanics and master car-builders are apt to lose sight of the fact that daylight is much cheaper and better than artificial light. In old shops, built when it was the fashion to make small windows and low roofs, the need of more light is often very seriously felt. In cloudy weather it frequently becomes necessary to use gas or lamps in the middle of the day, or late in the afternoon even in clear weather. In such circumstances it is a matter of wonder that in shops where the windows are the smallest, and the daylight most obstructed by adjacent buildings, the accumulation of smoke and dust upon windows and walls is usually the greatest. There are many shops along the lines of the older roads in which the cost of artificial light might be saved for an hour every day in winter, by washing the windows and whitewashing the walls at proper intervals. The proprietor of a small shop in Philadelphia occupying a contracted space between large buildings, makes it a point to keep the windows clean, and considers that a liberal application of soap and water to the glass is cheaper than gas while daylight lasts.

In shops where the windows are small, and especially if they are dirty, much additional light can be obtained by making them larger by cutting them down to the bench line and up to the floor above. Usually the walls will be just as strong, and in some cases even stronger, by a vertical enlargement of the window openings. A single foot, even, added to the height, nearly doubles the quantity of light. Such improvements are usually objected to on the ground that it is not expedient to go to the expense of making changes and alterations in old shops when new ones will probably be built in a few years. But the years go by and they are not built, or even contracted for, and in the meantime gas bills, short hours, diminished quantity and poorer quality of work, and other sources of expense arising from insufficient lighting, more than equal the cost of making the necessary alterations.

ELECTRIC RAILWAYS.

In a paper read before the Engineers' Club of St. Louis, Dr. W. Adams makes some very strong points in regard to the desirability and advantages of electricity as a motive power for railways. He shows that a system of electric transmission would bring with it many very important economies, and by dispensing with the necessity for hauling the motive power over the road and utilizing the weight of the cars themselves to secure the necessary adhesion, the power needed for propulsion would be greatly reduced. It is difficult, in a most careful examination of the statements, to see any points where the advantages have been overestimated. At first sight it would seem that, aside from the low efficiency of electric motors, the system as proposed by Dr. Adams was almost ready for introduction. The low efficiency obtained in using electricity for the transmission of power has been urged as a fatal objection. Those who are prejudiced against it have gone so far as to quote foreign experiments on the subject which were notoriously faulty, and estimate that only about fifty per cent. could be utilized. In this country much better results have been obtained, and from 60 to 65 per cent. of the power expended has been returned. These figures, of course, put the question in a very different light. The low efficiency, however, does not seem to be such a very great obstacle when some figures recently given by an engineer connected with the Chicago Cable Railway are considered. From his statements it appears that more than 380 horse-power is required to drive the cable and guide pulleys alone. The work of hauling the cars when in service only called for 88 horse-power in addition, the total being something less than 500. Taking the best of the figures, and calling the total horse-power 477, the net result is about 19 per cent. of useful effect. These figures fall so far below those of the most unfavorable electric experiments that it is not worth while to attempt to compare them. In spite of this very wasteful method of applying the power, the road is said to be a paying one. So well assured does this seem to be that the Third Avenue Street Railway Co. in New York is putting down a cable line some three or four miles long, at a cost of about $100,000 per mile, to demonstrate its utility.

If an extensive steam plant, driving a long, heavy and rapidly-wearing cable, supported on numerous pulleys which have to be constantly lubricated, and hauling cars whose gripping devices need almost daily renewal, can be made to pay on an efficiency of 18 per cent., it seems needless to urge low efficiency as an objection to electrical transmission of power on railways. For elevated roads and suburban lines, this mode of transmission appears to be well adapted, and apparently there is little to prevent its immediate application. There are, however, problems to be solved in connection with the main problem, which require for their solution something more than ordinary mechanical judgment.

What seems to be needed is a practical system of transmission from the motor to the driving axle. There must first be a great reduction in speed. The means by which this is to be provided must be some mechanism capable of running at a high rate of speed, unaffected by dampness or positive wet, not injured by sand or grit like cog wheels, and at the same time capable of making a flexible connection. The motor should be on the car, or in some place where it will have the advantage of being carried on springs. This will relieve it from the destructive jolting to which it would be exposed on the truck. Not only must the rising and falling of the body be provided for, but the truck must be permitted to curve freely, so that the angle between motor and axle is a varying one.

The difficulties, however, appear to be mostly mechanical and are not of a nature to greatly discourage the engineer, although no satisfactory solution has thus far been suggested. The dynamo must revolve at a rate of speed far greater than that at which it is practicable to drive a car wheel. A 33-inch wheel will make in round numbers 611 revolutions per mile, a 30-inch wheel 674, and a 28-inch wheel 722 revolutions in the same distance. At 30 miles per hour the larger wheel would be making 306, and the smallest one 361 revolutions per minute, while the dynamo would have to be making from 1,000 to 1,200 revolutions per minute.

Dr. Adams proposes to place the armature of the dynamo directly on the axle, and by using a small wheel, to do away with the necessity for gearing. With a 20-inch wheel there would be in round numbers 1,000 revolutions per mile, or 500 per minute, at 30 miles per hour. This would be much too slow for the dynamo, and a great deal too fast for the small wheel. The conditions get worse rather than better at slow rates of speed for the car, and it is difficult to see how any practical result can be obtained by putting the armature on the axle. This system also involves the necessity of placing the whole of the dynamo on the axle, where it would be without springs. Direct driving, to say the least, does not promise very well, in spite of the many advantages which it appears to offer.

For street railways there are some difficulties to overcome which are not met with on elevated roads nor on other steam lines. The chief of these, the lack of adhesion, has been sufficient to kill dummy engines, fireless locomotives and the whole tribe of motors which have been applied to the propulsion of street cars. This difficulty, stated in its simplest form, is that the weight of the street car with its load does not give sufficient adhesion for its own propulsion. The heavy grades, sharp curves, and mud which in winter is constantly on the track even when there is no snow, reduces the adhesion far below what is needed for moving the car. Years ago Mr. D. D. Williamson recognized this fact and suggested the use of a traction engine for hauling street cars. He proposed to guide the engine by a truck, but to put its driving wheels on the pavement between the rails. This was suggested in connection with a rubber-tired wheel, which has on pavements a very large adhesion with a given weight. The scheme was never demonstrated, although from the high coefficient of friction between the tire and the pavement it seemed to promise well. Until electric engineers find some way for overcoming this one difficulty they will not have much success in applying electricity to common street cars.

A CAR lighted by electricity is running on the Dedham branch of the Boston & Providence road, and is a favorite with passengers. The light is more brilliant than that of oil, and is perfectly steady, safe and clean. The system used is known as the Trouve, and is controlled by the Domestic Light & Power Co., of Boston, who claim that they can light cars and residences at a cost not greater than that of gas at $2 per 1,000 feet.

MR. WM. E. KYTE, a clerk in the service of the Pullman Palace Car Co., St. Louis, has invented an electric bell-cord for passenger trains, by which perfect intercourse, it is said, can be kept up between the cars and engines. The connections between the cars are so arranged as to notify the engineer of any disturbance that may occur. If a car becomes detached, the strain on the electric cord will act on the annunciator and warn the engineer of the trouble. Allowances are made for the differences in cars in connecting the wires. A test of its efficiency will shortly be made on the Vandalia road.

International Inventions Exhibition.

We called attention in our December issue to the importance of this exhibition, which is to be opened in London in May next. Since then we have been informed by Mr. J. Pierrepont Edwards, the British Consul in New York, that for the convenience of contributors from the United States, the time for receiving applications for space has been extended to the 31st of January, 1885.

In view of the great and increasing number of American inventions, and the interest which inventors must feel in bringing them to the knowledge of the world, the opportunity afforded by this exhibition is one that should not be neglected. As a matter of national pride, it is desirable that the display of exhibits from this country should be as creditable as possible and fairly represent the inventive fertility of our people. The time for securing space is short, but much can be done in the month which remains. The exhibition has been projected under the patronage of the Queen and the presidency of the Prince of Wales, and American inventions are expected to take a prominent place in it. No charge is made for space.

All necessary information, and printed forms of application, will be supplied upon applying to Mr. Edwards, British Consul, as above.

New Publications.

THE CAR-BUILDERS' DICTIONARY: An Illustrated Vocabulary of Terms which Designate American Railroad Cars, their Parts and Attachments. Compiled for the Master Car-Builders' Association by Matthias N. Forney, M. E., assisted by Leander Garey, Supt. of Car Dept., New York Central & Hudson River R. R., and Calvin A. Smith, Secretary of the Master Car-Builders' Association. REVISED AND ENLARGED EDITION, to which has been added a vocabulary of the leading terms used in English Railway Carriage and Wagon Construction, compiled by A. M. Wellington, C. E., assisted by members of the Executive Committee of the Master Car Builders' Association. Size 8×8 inches, 650 pages, 2,188 engravings. Published by the *Railroad Gazette*, 73 Broadway, New York. Price, $8.

The new edition of this important work, of which the above is a copy of the title page, is a great improvement upon the original, and will be widely appreciated by railway men and others who are interested in car construction and need a manual to which they can refer for a correct knowledge of all the details. The object of the first edition was to furnish a vocabulary of terms, with their definitions, so as to put an end to the confusion which had previously existed by the use of different names for the same parts on different roads, and even on the same road. The plan and scope of the original work in this respect has not been departed from in the revision, but has been greatly extended so as to include many additional details. The changes made in the original definitions are not many, and are limited to minor details only, in which the improvements were obvious, the same being approved by as many of the members of the Car-Builders' Association as could be conveniently consulted. The new edition is twice as large as the old one, the increase being more in the size of the pages than in the thickness of the volume; and while it retains all the essentials of a dictionary, it contains, at the same time, a great deal of technical information extremely valuable to those who are not car-builders, and which cannot be found in any other publication extant.

The value of a work like this, containing such a multitude of details, depends very much, of course, upon the way in which these details are arranged and classified so as to facilitate easy reference. This most important matter has not been neglected, but has been so well attended to that the skill and labor bestowed upon it will be lost sight of by the many users of the book who only appreciate its convenience. The engravings are grouped under six general classifications—namely, Cars; Car Bodies; Car Body Details; Furnishings; Trucks, and Truck Details; and the alphabetical and sub-classifications are such as to save the necessity of referring to an index to find any particular engraving. References also can readily be made from the dictionary proper to the engravings, and vice versa. The engravings occupy 304 pages, the larger portion of the book, and their whole number is 2,188. The number has not only been largely increased, as compared with those in the first edition, but in every case where it was needed the size has been increased so as to afford better views, while the quality of the engravings is very much improved, especially in clearness of detail, the absence of which in those of the former edition was a serious defect. The increased size of the pages allows cuts of the same parts or classes to be put on a single page, or on two pages facing one another.

The present work may be said to be the necessary sequel to its predecessor issued four years ago, which was an undertaking in an entirely new field, the magnitude of which was only realized as the work progressed. Defective as it was, it was a good beginning and has been widely used and consulted. Those who have become familar with it will the more readily appreciate the merits of the new edition. The compilers have done their work so thoroughly, by embodying everything in the way of improvement that could be suggested during a period of four years, that a much longer interval will now elapse before another edition is needed. It is a work altogether unique in its way, a suggestive index of railway progress, and it will doubtless prove to be a very efficient aid to future progress. A copy of it is worth many times its cost to every master car-builder, car shop foreman, workman in car shops, as well as to inventors, manufacturers, and dealers in the various classes of railway supplies. The price is $3 a copy, which is relatively much cheaper than that of the first edition, considering its increased size and additional matter.

THE BIOGRAPHICAL DIRECTORY OF THE RAILWAY OFFICIALS OF AMERICA: An Alphabetical List of the General and Division Officers of all Railways on the American Continent, with a Record of their Railway Service; with 26 Portraits. Edited by E. H. Talbot and H. R. Hobart. Price $4. Railway Age Publishing Co., Chicago.

This book fills a place in railway literature that has hitherto been unoccupied. It contains an alphabetical list of Presidents and Vice-Presidents, General and Assistant General Managers and Superintendents, Freight, Passenger and Ticket Agents, Chief Engineers and others, of the United States, Canada and Mexican railways, with the names of the roads and post-office address of the respective officials, and a concise history or railway record of each, devoid of personal eulogy. The date of birth is also given. Aside from personal interest, the practical usefulness of such a work, not only to railway men, but to others connected with the various branches of trade and manufacture, is obvious. Until now there has been no publication extant by which the antecedents and present official status of a railway officer could be ascertained by merely knowing his name. This book has been prepared to supply this information as quickly as a word can be found in an ordinary dictionary, and the arrangement is as well adapted to the purpose as it well could be. The Directory proper contains 275 two-column pages, and 3,764 official names.

In view of the increasing number of roads, and the great number of official changes that occur every year from death, resignation and other causes, it is contemplated by the publishers, in case the present initial volume is favorably received, to issue the work annually in future, with the changes and corrections up to the close of each year. The future issues will, of course, be comparatively much more complete than the present one, and all of them together will constitute a railway record, the value of which will increase with time.

The present volume is illustrated with 26 engravings of prominent railway men. So far as we can judge, the characteristic features of the originals are fairly represented, but in the quality of the engravings themselves there is room for improvement.

THE place of the next annual meeting of the Master Car Painters' Association has been changed from Montreal to Toronto, Can.

CIGAR BOXES are now made of white pine so as to be a perfect imitation of Spanish cedar. The resemblance is so complete that when the boxes are seen at a short distance the deception can not be detected. The pine is first stained the color of the cedar, and then scored or stamped with a toothed tool to represent the pores. The process is only applied to the outside of the boxes, the inside being covered with the usual paper lining. It is possible that mahogany might be imitated in a similar way, and by using a little deeper stain and a tool adapted to the grain of this particular wood, the best "San Domingo" might be put upon the market at a slight advance over what is now paid for clear pine.

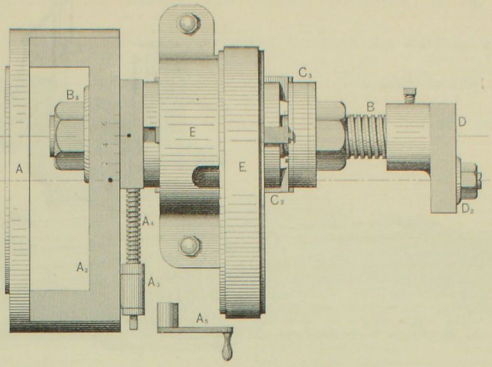


Fig. 1.

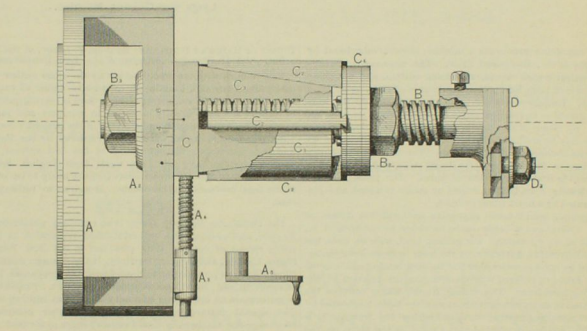


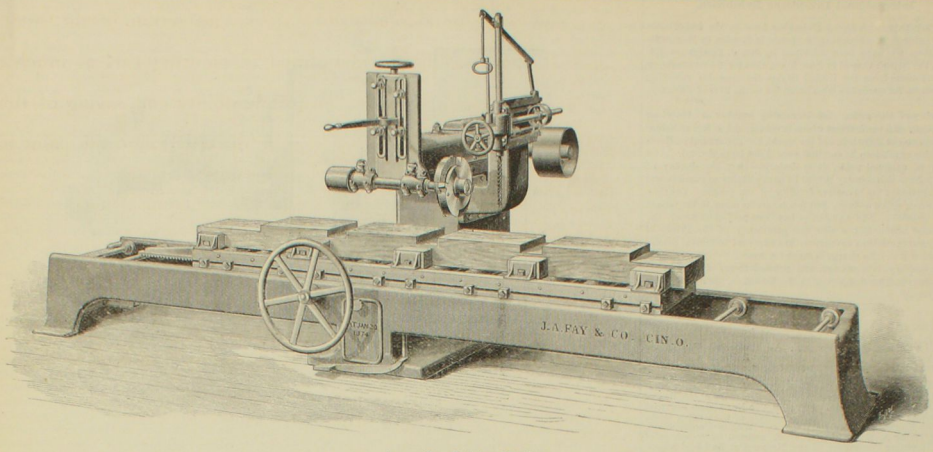
Fig. 2.

Hodgson's Eccentric Mandrel for Turning Locomotive Eccentrics.

The eccentric mandrel shown in the illustrations was designed by Mr. J. B. Hodgson, of the Mount Clare shops of the Baltimore & Ohio Railroad. It is designed for quickly and cheaply turning up locomotive eccentrics and other eccentric work of a similar kind. It consists of a face-plate A, bolted directly on to the face-plate of the lathe, an expanding mandrel, working in a slide and a center D_2 sliding in a direction opposite to that in which the mandrel is moved. This center takes a bearing on the dead center of the lathe.

Fig. 1 shows the mandrel in position with eccentric E ready for turning. The mandrel is set by the gauge on the bar A_3, and, as shown in the cut, is ready to turn an eccentric with a throw of five inches.

Fig. 2 shows the details of the construction. The bar A_3 has a slot in which the block C and the mandrel C_3 slide in and out. This block is held in place by the nut B_2. When the nut B_3 on the screw B is slacked up, the mandrel C_3 can be moved to and from the center by putting the handle A_5 on to the screw A_4. A scale is marked off on A_3, the divisions being half inches instead of inches, so that the throw of the eccentric is laid off from the drawing directly, without the liability to mistakes. The mandrel carries four wedges C_2, which work in grooves with inclined bottoms. These wedges are all all dovetailed into the ring C_1. As this ring is run in or out the wedges, of course, are moved in and out correspondingly. The nut B_3, working on the screw B, controls their motion. The block D is put on the head of the screw to carry the sliding center D_2, and thus support the mandrel at the outer end. The center is formed on an ordinary T-headed screw with a cup end. This block comes off when a piece of work is to be put in place. The whole rig is not only simple, but has been found exceedingly convenient, and has been used for a long time in the Mount Clare shops of the road. Of the many similar devices invented by Mr. Hodgson during his long connection with the road, this is one of the neatest that we have seen. It was designed and first built in the month of March 1874 and has been used in the shops ever since.

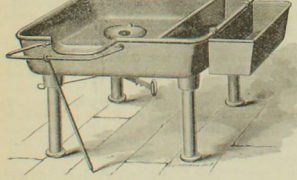


Large Car Gaining Machine.

The engraving represents a machine recently introduced by J. A. Fay & Co., Cincinnati, Ohio. The machine is provided with vertical boring works, traversing cutters, and automatic feed, and is of large size, occupying an area of 10 ft. by 21 ft. on the floor. Timbers of any size to 16 in. thick, by 22 in. wide, can be gained at any desired angle to the depth of 4 in., and also bored. By means of the stops in front of the table, duplicates of timbers may be produced indefinitely, the stops indicating the width and distance apart of the gains. The depth of the gains is determined by the position of the spring stops in the cutter slide, which will indicate four depths of gains. The table is moved longitudinally upon friction rollers by means of a rack and pinion operated by a hand wheel in front.

The gaining head is made expansive and will cut double its width. Other sizes of heads can be furnished to cut up to 6 in. in width at one operation. The gaining-head, with its slide, has vertical movement, governed by the lever in front and counterbalanced by springs enclosed in the moving frame, and can be quickly raised or lowered without changing the position of the governing hand-lever. The sliding frame, which conveys the cutter-head in its travers-movement over the table, is actuated by means of a train of gearing contained within the frame. It is automatic, and can be stopped at any point by the stops on the side of the column.

The sliding cutter-head frame runs at a fixed speed, whether for wide or narrow timber—a peculiarity of this machine. This equal speed in either direction enables the cutting to be done both ways, the cutter-head being so constructed as to facilitate the operation. The driving countershaft is placed vertically over the center of the distance of the travel of the pulley shaft in the rear end of the sliding frame. The arc of the circle struck from it being but slightly different from its chord, the tension of the belt remains nearly uniform. A spindle for vertical boring is attached to the right-hand side of the column for boring timbers and sills after the gaining has been completed; it has a vertical movement of 10 in., and also a transverse movement over the carriage of 16 in. It can be used or not, at will; is not in the way of gaining, and is an improvement in this class of machines long needed, saving not only the handling of the material, but the cost of a special boring machine, as well as the expense of another operator.



Stationary Blast Forge.

The cut represents a No. 6 stationary blast forge manufactured by the Empire Portable Forge Co., Cohoes, N. Y. It is designed especially for railway shops and for heavy forging, and is constructed of heavy cast-iron plates supported by pipe-legs, and furnished with a water and coal box and tool rest. The blast can be obtained from a power-blower, hand-blower or bellows. An adjustable Empire tuyere is provided by which the quantity and force of the blast can be regulated or entirely cut off. The forge does not cost half so much as one made of brick, is just as strong and durable and can be moved when desired. It is 26 inches high and weighs 400 pounds. The fire-pan is 28 by 51 inches. It is obvious that forges of this discription are a great improvement upon the bulky and cumbersome brick forges that are still so extensively used in blacksmith shops. Further particulars may be obtained by addressing the company as above.

DIGEST OF RAILWAY DECISIONS: By John F. Lacey, of the Iowa Bar. Vol. II. Chicago: Callaghan & Co., Law Publishers.

This volume, with the preceding one by the same author published nine years ago, contains an exhaustive digest of railway law. Since the first volume was issued, cases involving questions of railway law have greatly increased in numbers and importance. These are collected and digested in the present volume of 1,300 pages, including all the decisions rendered by our Federal and State courts since the publication of the first volume; and copious selections have also been made from English, Scotch, Irish, Canadian and Australian cases that are likely to be of use to the legal profession in this country, as well as to railway officials.

The Pathfinder Railway Guide is an excellent publication of its class, and maintains its well established reputation as a reliable record of railway time schedules in the New England States, Canada, and adjacent territory. It also contains steamboat time tables, and information in respect to stations, distances, fares, connections, etc., that is indispensable to travelers. The editorial pages contain an interesting summary of current railway news. The special feature of the December number consists of two large and handsomely tinted railway maps in the best style of map engraving, one representing the New England States and lower Canada, and the other the entire Lake region, the Middle, and a part of the Southern States. These maps are to be published with each number of the *Guide*, and are alone worth the price charged for it. Published monthly by the New England Railway Publishing Co., Boston. Subscription, $2.50 a year.

THE ACME MACHINERY CO., Cleveland, Ohio, have issued a new catalogue and price list, containing illustrated descriptions of bolt and nut machinery manufactured by them, and comprising the different sizes and classes of single and double bolt cutters. The superior advantages of the "Acme" head and dies are pointed out, with detailed directions for running the cutters and making and repairing the dies so as to insure clean cutting and accurate and uniform threads. Appended to the catalogue is a list of flattering testimonials from parties who are using the "Acme" bolt cutters, nut tappers and other tools manufactured by the company.

THE Roberts Dust Guard, for journal boxes, manufactured by The Roberts Railroad Dust Guard Manufacturing Co., of Detroit, Mich., is said to be very effective in excluding dust from car journals and preventing waste of oil. It consists of two thin boards, between which is an oil-soaked cloth arranged to slide up and down on small rods, and by means of a spring is kept in constant contact with the axle, thus acting as a wiper, and moving so as to adjust itself to the shifting movements of the box. The device has been in use some three months on the Detroit, Grand Haven & Milwaukee road.

THE COLLIAU FURNACE CO., Detroit, Mich., shipped a few days ago one of its largest size Colliau Cupolas to R. D. Wood & Co., Philadelphia; making the fourth shipped to the same parties during the year just closed. The company is also making an other of the same size for the Gloucester Iron Works, of Philadelphia.

THE Lidgerwood Manufacturing Co., New York, has been awarded the gold medal for superior excellence in hoisting engines, boilers and small stationary engines, at the Exhibition of the Massachusetts Charitable Mechanic Association, held at Boston.

AN official report upon the fuel used on Russian railways has recently been issued. It appears from this report, which refers to the year 1881, that of the 49 railway companies existing in the Empire, only four were using wood exclusively for their locomotives. The lines were all short ones, running through forest tracts abundantly supplied with wood and far away from coal supplies. The use of petroleum as an engine fuel has become almost general on the lines near the Caucasus.

THE CAR-BUILDERS' DICTIONARY (revised and enlarged edition just published) and the NATIONAL CAR-BUILDER for 1885, will be furnished to new subscribers for $3, which is the regular price of the new edition of the Dictionary.

Our Directory.

We note the following changes since our last issue. Our readers will do us a great favor by giving us prompt notice of any changes that may come to their knowledge or of any errors that may be noticed in our list:

Anniston & Atlantic.—Thomas K. Scott has been appointed Superintendent.

Boston & Albany.—W. H. Barnes, heretofore General Superintendent, has been appointed General Manager; and E. Gallup, heretofore Assistant Superintendent, succeeds Mr. Barnes as General Superintendent.

Boston & Maine.—Jas. T. Furber is General Manager; Wm. Merritt, Jr., Superintendent of Western Division; D. W. Sanborn, Superintendent of Eastern Division; John W. Sanborn, Superintendent of Northern Division; and Wm. Smith, Superintendent of Motive Power.

Central Pacific.—C. B. Seymour, previously Superintendent of the Colorado Division, is now Superintendent of the El Paso Division.

Chicago & Western Indiana.—R. W. Johnson has been appointed Master Mechanic in place of H. C. Washburn, resigned.

Illinois Central.—W. B. McKenna has been appointed Master Mechanic of the Louisiana Division, at McComb City, Miss., to succeed F. W. Baker, resigned.

Louisville & Nashville.—Jas. T. Harahan has resigned his position as General Manager.

Michigan & Ohio.—W. L. Webb has been appointed Purchasing Agent.

Milford & Woonsocket.—W. W. Jenckes is appointed Superintendent, with office in Milford, Mass., in place of E. T. Logee, resigned.

Mobile & Ohio.—Col. T. M. R. Talcott has been appointed Vice-President and General Manager, in place of Gabriel Jordan, deceased.

Nevada Central.—Joseph K. Choate is appointed Acting Superintendent, in place of N. W. Dunn, resigned.

New York, Lake Erie & Western.—W. J. Murphy has been appointed Superintendent of the Buffalo and Rochester Divisions in place of Chas. Neilson, resigned, and John H. Hawthorne Master Mechanic at Hornellsville, in place of Geo. H. Griggs, resigned. E. Van Etten succeeds Mr. Murphy as Superintendent of the Delaware Division.

Ohio River.—Charles Howard has resigned his position as Superintendent, and C. L. Williams has been appointed Assistant Superintendent.

Pennsylvania.—W. N. Bannard has been appointed Superintendent of Amboy Division, in place of Isaac S. Buckelew, deceased; James Reed, Superintendent Schuylkill Division, in place of W. N. Bannard, transferred; J. B. Hutchinson, Superintendent Altoona Division, in place of J. Reed, transferred; Wilson Brown, Superintendent Frederick Division, in place of J. B. Hutchinson, transferred.

Philadelphia & Atlantic City.—W. Bertolet has been appointed Superintendent, vice F. S. Urie, resigned.

St. Louis Coal.—E. C. Dawes is President and General Manager, and R. J. Cavett, Superintendent.

St. Louis, Alton & Terre Haute.—R. M. Pringle has been appointed Master Mechanic of the roads operated by this company, to succeed A. M. DeClerq, deceased.

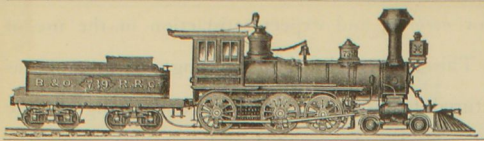
Tioga.—L. H. Shattuck has been appointed Superintendent, in place of R. Du Puy.

Union Pacific.—M. H. Goble has resigned his position as General Purchasing Agent.

Wabash, St. Louis & Pacific.—John Lange has been appointed Superintendent of Car Department for all lines west of the Missouri River. Office at Moberly, Mo. H. H. Wellman is now Purchasing Agent and General Storekeeper, with office in St. Louis.

Employment.

WANTED—A position as Foreman or Draughtsman in the car or water-tank department in a railway shop, or as Superintendent of a contract shop. The applicant has had several years experience as car and water-tank builder. Best references furnished. Address "S. A. W.," office of NATIONAL CAR BUILDER.



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From standard designs, or according to specifications, to suit purchasers.

Tanks, Locomotive or Stationary Boilers Furnished at Short Notice

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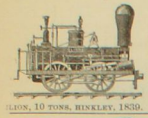

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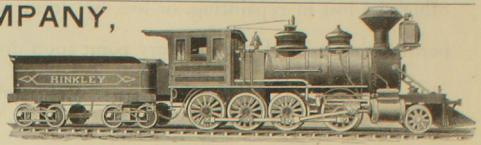
FOR ALL GAUGES.

Best workmanship and interchangeability of parts guaranteed.



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ESTABLISHED 1831.

BALDWIN LOCOMOTIVE WORKS,

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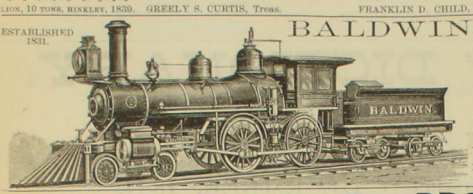

BURNHAM, PARRY, WILLIAMS & CO., PROPRIETORS,

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Adapted to every variety of service, and built accurately to standard gauges and templates. Like parts of different engines of same class perfectly interchangeable.

Passenger and Freight Locomotives, Mine Locomotives, Narrow Gauge Locomotives, Steam Street Cars, etc. Illustrated Catalogues furnished on application of customers. All work thoroughly guaranteed.

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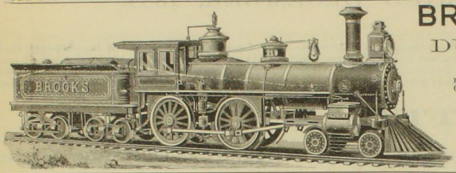

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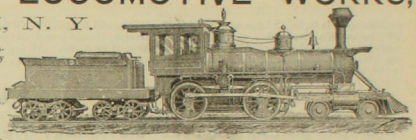

ROGERS LOCOMOTIVE AND MACHINE WORKS,

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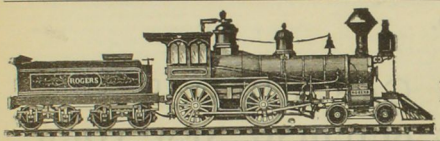

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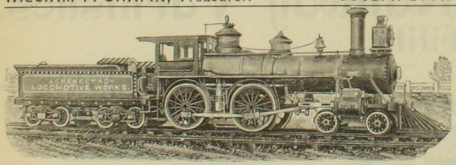

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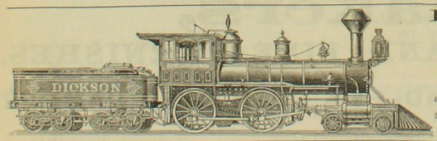
SCHENECTADY, N. Y.



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MANUFACTURERS OF

LOCOMOTIVES FOR EVERY KIND OF SERVICE.

The different classes constructed according to standard gauges and templets, so that like parts are interchangeable and may be ordered by number.

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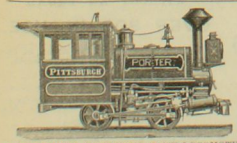

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H. K. PORTER & CO., PITTSBURGH PA.

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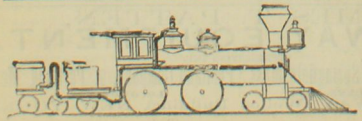

THE ASHTON VALVE COMPANY,

271 Franklin Street, Boston, Mass.

The Ashton Blow-back Safety-valve is constructed so as to conduct the escape steam which is blown off back to the leader, or to the smoke-box and up the chimney. By this arrangement the heat of the escape steam, instead of being wasted as it is when an ordinary safety-valve blows off, is communicated to the cold water in the tender. This not only results in an important economy, but it renders the escaping steam noiseless, and the increase of temperature of the water has a tendency to deposit some of its impurities before it is pumped into the boiler. *It thus stops the noise! saves fuel! and all, enginee steam better and faster, and do more effective work with these valves* than with those in ordinary use.

DIRECTORY

the Railroads of the United States and Canada, showing the gauge, length of road, number of locomotives and number of cars; and giving the names and titles of their principal officers in charge of the operating, purchasing and rolling stock departments.

A

Adirondack R. R. 4-8½ gauge 60 m. 3 lo. 62 cars.
C. E. Durkee, *Supt* ....Saratoga, N. Y.
Jacob Myers, *M. M* ... . .Saratoga, N. Y.
Jas. J. Traver, *M. C. B* ....Saratoga, N. Y.
Addison & Northern Penn'a Ry. 3 g. 46 m. 5 lo. 50 c.
F. M. Baker, *Gen. Supt* .. ..Addison, N. Y.
Alabama Great So'n R. R. (*See Cin., N. O. & T. P.*)
Albany & Susquehanna R. R. (*See D. & H. Canal Co.*)
Albemarle & Raleigh R. R. 4-8½ g. 33 m. 3 lo. 35 c.
Jas. H. Petty, *Gen. Supt*...... Tarboro, N. C.
Albert Ry. 4-8½ g. 51 m. 3 lo. 35 cars.
G. A. Robinson, *Man. & Pur. Agt.* Hillsboro, N. B.
Jas. McKay, *M. M. & C. B*......Hillsboro, N. B.
Alexandria & Fredericksburg Ry. } *See Penna. R. R.;*
Alexandria & Washington R. R. } (7) *Div.*
Allegheny Valley R. R. 4-9 g. 259 m. 70 lo. 2202 c.
David McCargo, *Gen. Supt. & Pur. Agt.;* and
C. B. Price, *Supt.* (Riv. Div.).....Pittsburg, Pa.
A. A. Jackson, *Supt.* (L. G. Div.). Reynoldsville, Pa.
W. A. Wood, *M. M* ....Verona, Pa.
R. Gunning, *M. C. B*.......... Verona, Pa.
Alliance, Niles & Ashtabula R. R. (*See Penna. Co.*)
Annapolis & Elk Ridge R. R. 4-8½ g. 20 m. 4 lo. 29 c.
W. H. Bians, *Supt. & Pur. Agt*..Annapolis, Md.
John L. Beall, *M. Mach*........ Annapolis, Md.
Anniston & Atlantic R. R. 3 g. 9 m.
Tho. K. Scott, *Supt* .... Anniston, Ala.
Antwerp & Paulding R. R. 4-8½ g. 6 m. 4 lo. 63 c.
E. C. Munson, *Gen. Man* ....Antwerp, O.
William Fitzsimmons, Jr., *Pur. Agt.* Antwerp, O.
Arizona & New Mexico Ry. 3 g 71 m. 3 l. 60 cars.
W. H. Jones, *Gen. Supt. & P. A.* Lordsburg, N. M.
W. C. Boylan, *M. M. & M. C. B.* Lordsburg, N. M.
Arkansas Midland R. R. 3-6 g. 63 m. 4 lo. 45 cars.
A. H. Johnson, *Pr. & Gen. Man*...Helena, Ark.
J. B. Johnson, *M. M. & M. C. B*...Helena, Ark.
Arkansas & Louisiana Ry. 4-8½ g. 16 m.
J. A. Beardsley, *Gen. Supt*...Washington, Ark.
Asheville & Spartanburg R. R. 5 g. 49 m. 2 lo. 12 c.
Jas. Anderson, *Supt. & Pur. Agt*..Spart'b'g, S. C.
M. M........... .Spartanburg, S. C
W. B. Brown, *M. C. B*........Spartanburg, S. C.
Ashland Coal & Iron Ry. 4-8½ g. 22 m. 7 lo. 432 c.
Douglas Putnam, Jr., *Gen. Supt.* Ashland, Ky.
Robt. Peebles, *Pur. Agt*..........Ashland, Ky.
E. M. Roberts, *M. M*........ .....Ashland, Ky.
Ashtabula & Pittsburgh Ry. (*See Penna. Co.*)
Atchison, Topeka & Santa Fé R. R.
48½ g. 2,020 m. 348 lo. 9,629 cars.
A. A. Robinson, *Gen. Man*....... Topeka, Kan.
Geo. B. Harris, *Asst. Gen. Man*...Topeka, Kan.
Geo. Hackney, *Supt. Mach*.......Topeka, Kan.
Clem. Hackney, *Asst. Sup. Mach. Dept.* do.
Geo. Hargraves, *Pur. Agt*.... . Topeka, Kan.
Eastern Div.: D. J. Chase, *Supt*. ...Topeka, Kan.
Henry Hull, *G. F. Car Dept*....Topeka, Kan.
John Fagan, *M. M*..............Atchison, Kan.
J. M. Smith, *M. M*......... .Kansas City, Mo.
Alfred Taylor, *M. M*............Emporia, Kan.
Mid. Div.: H. R. Nickerson, *Supt.* Nickerson, Kan.
W. Y. Johnson, *M. M*....... .Nickerson, Kan.
....................Dodge, Kan.
W. Div.: C. M. Rathburn, *Supt*.....La Junta, Col.
A. C. Stiles, *M. M*.... ..... La Junta, Col.
D. H. Dotterer, *M M*.............Raton, N. M.
Las Vegas Div.: Chas. Dyer, *Supt.* Las Vegas, N. M.
F. B. Woodruff, *M. M*......Las Vegas, N. M.
J. H. Holman, *M. M* ... .Wallace, N. M.
Rio Gr. Div.: P. F. Barr, *Supt.* San Marcial, N. M.
E. Hackett, *M. M*.........San Marcial, N. M.
H. P. Olcott, *M. M*.. . .. .Deming, N. M.
Geo. A. Hancock, *M. M*.......El Paso, Tex.
Sonora Div.: 265 m.
L. H. Waugh, *M. M*..........Guaymas, Mex.
Kan. Cy., Law. & So. Kan.
4-8½ g. 399 m. 24 lo. 787 c.
J. L. Barnes, *Supt*...............Lawrence, Kan.
T. D. Volk, *M. M*.... ....Ottawa, Kan.
Atlanta & West Point R. R. (*See Western of Ala.*)
Atlantic & Danville Ry. 3 g. 17 m.
E. G. Sweatt, *Gen. Man*..... .....Waverly, Va.
Atlantic & North Carolina R. R. (*See Midland; N. C.*)
Atlantic, Tenn. & Ohio R. R. (*See Rich. & Dan.;* (2) *Div.*)
Atlantic & Pacific R. R. 4-8½ g. 575 m.
F. W. Smith, *G. Supt*.........Albuquerque, N. M.
A. G. Thompson, *Pur. Agt*.. ...St. Louis, Mo.
Geo. Chalender, *Supt. M. P. & M.*, and
Geo. F. Chalender, *A. Supt.* Albuquerque, N. M.
Div. Supt........Williams, Ariz.
Augusta & Knoxville R. R. (*See Port Royal & Aug.*)
Austin & Northwestern R. R. 3 g. 60 m. 5 lo. 75 c.
J. A. Rhomberg, *Gen. Man*.. .... Austin, Tex.

B

Bachman Valley R. R. (*See Han. Junc., Han. & Gett.*)
Balt. & Delaware Bay R. R. 4-8½ g. 50 m. 2 lo 13 c.
Fred Gerker, *Gen. M. & P. A.* Chestertown, Md.
Baltimore & Hanover R. R. (*See H. J., H. & G.*)
Baltimore & Ohio R. R.
4-8½ g. 1,612 m. 574 lo. 17,339 cars.
B. Dunham, *Gen. Man*.......... Baltimore, Md.
N. S. Hill, *Pur. Agt* ....Baltimore, Md.
Ohio Riv. Div. 4-8½ g. 972 m.
W. M. Clements, *Gen. Supt*...Baltimore, Md.
A. J. Cromwell, *Act. M. of M*..Baltimore, Md.
E. W. Grieves, *Act'g M. C. B*..Baltimore, Md.
I. N. Kalbaugh, *M. M*..... ...Baltimore, Md.
Wm. Edwards, *M. M*...Martinsburg, W. Va.
Sam. Houston, *M. M*........Piedmont, W. Va.
Robert Maxwell, *M. M*...... Cumberland, Md.
S. B. Crawford, *M. M*.. ......Grafton, W. Va.
Alex. Laird, *M. M*........Parkersburg, W. Va.
W. B. McClung, *M. M* .....Wheeling, W. Va.
Pitts. Div.: T. M. King, *Gen. Supt*..Pittsburgh, Pa.
J. E. Sampsell, *Ast. M. of M.* Connellsville, Pa.
Trans-Ohio Divs.: G. J. Foreacre, *G. Man* Newark, O.
W. H. Harrison, *Asst. M. of Mach*..Newark, O.
E. L. Weisgerber, *M. M*....... .....Newark, O.
H. M. Ingler, *M. M*.. ....Bellaire, O.
O. B. Perkins, *M. M*.............Zanesville, O.
Andrew Beckert, *M. M*..........Sandusky, O.
F. J. Gunther, *M. M*.....Chicago Junction, O.
Chi. Div.: *Gen. Supt* ..Chicago, Ill.
Benj. Lowther, *M. M*.... .... Garrett, Ind.
W. H. Wilkinson, *M. M* ... .. Kingston, Ill.
Baltimore & Philadelphia. 4-8½ g. 20 m. 4 lo. 35 c.
B. Dunham, *Gen. Man*.........Baltimore, Md.
D. Connell, *Supt* ....Wilmington, Del.
Baltimore & Potomac R. R. (*See Penna. R. R.;* (7) *Div.*)
Bangor & Piscataquis R. R. 4-8½ g. 63 m. 4 lo. 87 cars.
Arthur Brown, *Supt. & Pur. Agt*..Bangor, Me.
C. S. Nason, *M. M* ... .Bangor, Me.
J. W. Comins, *M. C. B*... ..... Oldtown, Me.
Bangor & Portland Ry. 4-8½ g. 25 m. 3 lo. 3 c.
C. Miller, *Pres. & Gen. Man*...Blairstown, N. J.
Barclay R. R. 4-8½ g. 16 m. 6 l. 200 c.
F. F. Lyon, *Supt*..... ....Barclay, Pa.
J. A. Hardenburg, *Pur. Agt*..21 Cort. st., N. Y.
Wm. Johnson, *M. M*.............. Towanda, Pa.
Batesville & Brinkley R. R. 3 g. 25 m. 2 lo. 34 c.
R. W. Martin, *Pres*......... ....Little Rock, Ark.
W. J. Thompson, *Gen. Man*..Little Rock, Ark.
E. Summerfield, *Gen. Supt*..... Brinkley, Ark.
R. B. Davis, *Pur. Agt*............Brinkley, Ark.
John White, *M. M*................Brinkley, Ark.
Bath & Hammondsport R. R. 3 g. 10 m.
Allen Wood, *Gen. Man*..Hammondsport, N. Y.
Baton Rouge, Grosse Tête & Opelousas R. R.
5-6 g. 29 m. 3 lo. 12 c.
D. C. Montan, *Gen. Supt*...... ..Port Allen, La.
Bedford & Bloomfield Ry. 3 g. 43 m. 5 lo. 65 cars.
Jas. W. Kennedy, *Gen. Supt. & Pur. Agt.;* and
Capt. Geo. Elliott, *M. M*...........Bedford, Ind.
Richard G. Elliott, *M. C. B*......Bedford, Ind.
Bellaire, Zanesville & Cin. Ry. Co. 3 g. 42 m 5 lo. 71 c
S. L. Mooney, *Gen. Supt* ...... Woodsville, O.
J. B. Hong, *M. M*.......... ....Bellaire, O
Bell's Gap R. R. 4-9 g. 23 m. 4 lo. 148 cars.
R. G. Ford, *Supt*..... ...Bellwood (P. O.), Pa.
Geo. Van Brunt, *M. M* ... .Bellwood, Pa.
A. Zimmerman, *M. C. B*..........Bellwood, Pa.

Belt R. R. 4-8½ g. 12 m. 10 lo.
W. P. Ijams, *Supt*............Indianapolis, Ind.
Bennington & Glastonbury. 4-8 g. 10 m.
R. C. Root, *Pres* ... .Bennington, Vt.
Bennington & Rutland Ry. 4-8½ g. 59 m. 10 lo. 236 c.
F. C. White, *Supt. & Pur. Agt*..Bennington, Vt.
G. W. Blanchard, *M. M*.............Rutland, Vt.
Berlin Branch R. R. (*See Han. Junc., Han. & Gett.*)
Bingham, Canyon & Camp Floyd (*See Den. & Rio Gr.*)
Bladen, Columbus & Florida. 4-8½ g. 16 m 2 lo. 2 c.
John Colville, *Pres*..........Wilmington, N. C.
Bod & Benton Ry. 3 g. 34 miles.
Thomas Holt, *Supt. & Pur. Agt*..... Bodie, Cal
E. H. Barton, *M. M. & C. B*.........Bodie, Cal.
Boston, Barre & Gardner. 4-8½ g. 37 m. 8 lo. 108 c.
H. H. Marshall, *Supt. & P. A*..Worcester, Mass.
Frank I. Goodwin, *M. M* .... Worcester, Mass.
Boston, Hoosac Tunnel & W'n Ry.
4-8½ g. 87 m. 18 lo. 1,038 cars.
H. L. Morrill, *Gen. Man*..Mechanicsville, N. Y.
C. H. Cory, *Pur. Agt*......Mechanicville, N. Y.
C. H. Cory, *Supt. & M. M*..Mechanicville, N. Y.
John S. Ellis, *M. C. B*......Mechanicville, N. Y.
Boston, Revere Beach & Lynn R. R. 3 g. 9 m. 7 lo. 46 c.
C. A. Hammond, *Supt. & P. Agt.* Boston, Mass.
R. D. Sutherland, *M. M*...... ...Boston, Mass.
John Coghlan, *M. C. B* ....Boston, Mass.
Boston, Winthrop & Point Shirley R. R.
3 g. 10 m. 1 lo. 8 c.
C. A. Parks, *Supt*....... ... .Boston, Mass.
J. W. Davis, *M. M*... .. ..Winthrop, Mass.
Boston & Albany R. R. 4-8½ g. 372 m. 245 lo. 6,111 c.
W. H. Barnes, *Gen. Man*.. ......Boston, Mass.
Edw. Gallup, *Gen. Supt*.......Springfield, Mass.
A. B. Underhill, *Supt. M. P*...Springfield, Mass.
F. D. Adams, *Gen. M. C. B*.......Allston, Mass.
H. B. Chesley, *Div. Supt*.... . ..Boston, Mass.
G. H. Colby, *Div. M. M* ....Boston, Mass.
C. E. Grover, *Div. Supt*.....Springfield, Mass.
H. W. Eddy, *Div. M. M*....Springfield, Mass.
J. B. Weston, *For. Car Sh.* Springfield, Mass.
W. H. Russell, Jr., *Div. Supt.* E. Albany, N. Y.
T. B. Purvis, *Div. M. M* ..East Albany, N. Y.
J. E. Doran, *For. Car Sh*..East Albany, N. Y.
Boston & Lowell R. R.
4-8½ g. 140 m. 82 lo. 2,565 cars.
C. S. Mellen, *Gen. Supt*..... .....Boston, Mass.
F. H. Nourse, *Pur. Agt*.... ... .Boston, Mass.
Jas. K. Taylor, *Supt. R. S. & M.* Concord, N. H.
So. Div.: J. F. Crockett, *Supt*... ..Boston, Mass.
E. T. Sumner, *M. M* ... .Boston, Mass.
No. Div.: Geo. A. Todd, Supt ...Concord, N. H.
C. C. Aspinwall, *M. M* ....Concord, N. H.
Wh. Mount Div.: W. A. Stowell, *Supt.* Concord, N. H.
Geo. A. Furguson, *M. M*.. .Lake Village, N. H.
Boston & Maine R. R. 4-8½ g. 206 m. 89 lo. 2,209 c.
J. T. Furber, *Gen. Man* ....Boston, Mass.
Geo. J. Fisher, *Pur. Agt*..........Boston, Mass.
Wm. Smith, *Supt. M. P*. ....Boston, Mass.
D. C. Richardson, *M. C. B*.....Lawrence, Mass.
West. Div.: Wm. Merritt, *Supt*....Boston, Mass.
East. Div.: D. W. Sanborn, *Supt*..Boston, Mass.
North Div.:
J. W. Sanborn, *Supt*..Wolfboro Junc., N. H.
Boston & N. Y. Air Line R. R. (*See N. Y., N. H. & H.*)
Boston & Providence R. R. 4-8½ g. 67 m. 52 lo. 1,006 c.
A. A. Folsom, *Gen. Supt. & P. A.* Boston, Mass.
Geo. Richards, *M. M*..... .....Roxbury, Mass.
Jno. Lightner, *M. C. B*........ .Roxbury, Mass.
Bowling Green R. R. 4-8½ g. 6 m. 2 lo. 4 c.
Wm. A. Wiggins, *Gen. Man* Bowling Green, O.
Wm. A. Wiggins, *Pur. Agt*..Bowling Green, O.
Bradford, Bordell & Kinzua R. R. 3 g. 42 m. 6 lo. 82 c.
Bradford, Eldred & Cuba. 3 g. 54 m. 6 l. 158 c.
Tonawanda Valley & Cuba. 3 g. 60 m. 5 lo. 31 c.
J. V. D. Loomis, *Supt* ....Attica, N. Y.
Jno. Delaney, *M. M. & C. B*......Bradford, Pa.
Brattleboro' & Whitehall R. R. 3 g. 36 m. 3 lo. 56 c.
(*Operated by Central Vermont.*)
Breakwater & Frankford R. R. (*See Del., Md. & Va.*)
Bridgton & Saco River R. R. 2 g. 16 m. 2 lo. 19 c.
Wm. F. Perry, *Gen. Supt*... .. Bridgton, Me.
M. M. Caswell, *M. M. & Pur. Agt.* Bridgton, Me.
Brighthope Ry. 3 g. 37 m. 4 lo. 193 cars.
Jas. R. Worth, *Supt*.... ....Richmond, Va.
P. M. Buckingham, *Pur. Agt* Richmond, Va.
A. Gary, *Supt. Way & Works.* Winterpock, Va.
Robt. Kredell, *M. M*.... ....Chester, Va.
Brooklyn, Bath & Coney Island R. R.
4-8½ g. 7 m. 8 lo. 36 cars.
Geo. A. Gunther, *Gen. Man*...Brooklyn, N. Y.
Aug. Wolff, *M. M* .... .Brooklyn, N. Y.
Brooklyn, Flatbush & Coney Island Ry.
4-8½ g. 7 m. 7 lo. 54 c.
J. L. Morrow, *Supt. & P. A*...Brooklyn, N. Y.
Wm. Finley, *M. M*......... ....Brooklyn, N. Y.
Brooklyn & Rockaway Beach R. R.
4-8½ g. 3 m. 2 lo. 18 cars.
Wm. Warner, *Supt*.. ...East New York, N. Y.
Brunswick & Western R. R. 5 g. 172 m. 13 lo. 170 c
H. S. Morse, *Gen. Man. & P. A.*.Brunswick, Ga.
R. J. Evans, *Supt*... .... Brunswick, Ga.
W. R. Kline, *M. M*...... ....Brunswick, Ga.
Buff., N. Y. & Phil. R. R. 3 & 4-8½ g. 655 m. 120 l. 6,339 c.
Geo. S. Gatchell, *Gen. Supt*..... Buffalo, N. Y.
W. W. Halsey, *Asst. to G. Supt.* Buffalo, N. Y.
Allen Vail, *Supt. M. P. & M*.....Buffalo, N. Y.
Buff. Div.: Henry Dwyer, *Supt*.... Buffalo, N. Y.
Roch. Div.: , *Supt*.. . Olean, N. Y.
Pitts. Div.: E. H. Witter, *Supt*......Oil City, Pa.
H. J. Bookhammer, *M. M*.........Oil City, Pa.
John Monks, *M. C. B*.. .. ..Oil City, Pa.
C. E. Turner, *M. M*..... ....Olean, N. Y.
Burlington, Cedar Rapids & Northern Ry
4-8½ g. 713 m. 76 lo. 3,006 cars.
C. J. Ives, *Pres*.. .. ..Cedar Rapids, Ia.
Robt. Williams, *Gen. Supt* ...Cedar Rapids, Ia.
T. Stickney, *Pur. Agt*...... ...Cedar Rapids, Ia.
R. W. Bushnell, *M. M. & C. B.* Cedar Rapids, Ia.
Burlington & Lamoille R. R. 4-8½ g. 35 m. 4 lo. 64 c.
G. L. Linsley, *Gen. Man. & Supt.* Burlington, Vt.
F. G. Brownell, *M. M., M. C. B. & P. A.* do.
Burlington & Mo. Riv. R. R. (in Neb.) (*See C. B. & Q.*)
Burlington & North-West'n Ry. 3 g. 38 m. 3 lo. 97 c.
Burlington & Western R. R. 3 g. 15 m. 38 c.
W. B. Jones, *Supt*...... ....Burlington, Ia.
Burlington & Ohio River R. R. 4-8½ g.
R. Tanner, *Pur. Agt*......... ......Chicago, Ill.

C

California Northern R. R. 4-8½ g. 26 m. 2 lo. 17 c.
Andrew J. Binney, *Gen. Man*..Marysville, Cal.
California Southern R. R. 4-8½ g. 127 m. 13 lo. 301 c.
J. N. Victor, *Supt*...........National City, Cal.
J. M. Keith, *M. M*...... .....National City, Cal.
Cambridge & Seaford. (*See Penna. R. R.;* (4) *Div.*)
Camden Atlantic R. R. (*See Penna. R. R.;* (2) *Div.*)
Canada Southern Ry. (*See Mich. Cen.;* (2) *Div.*)
Canada Atlantic Ry. 4-8½ g. 82 m.
D. C. Linsley, *Man*...... .. ..Ottawa, Ont.
M. Donaldson, *M. M* .... Ottawa, Ont.
Canadian Pacific R. R. 4-8½ g. 1,742 m. 118 l. 2,726 c.
W. C. Van Horne, *Gen. Man*....Montreal, Que.
T. G. Shaughnessy, *Asst. G. M.* Winnipeg, Man.
T. R. F. Brown, *Mech. Supt*.....Montreal, Que.
T. G. Shaughnessy, *Pur. Agt*... Montreal, Que.
E. Div.: Archer Baker, *Gen. Supt.* Montreal, Can.
Tho. Irwin, *Mech. Supt*.......Brockville, Ont.
W. Div.: J. M. Egan, *Gen. Supt*..Winnipeg, Man.
F. C. Butterfield, *M. M. & M. C. B.* Winnipeg, Man.
Cape F'r & Yadkin Val. R. R. 4-8½ g. 112 m. 7 lo. 60 c.
J. S. Morrison, *Gen. Supt*....Fayetteville, N. C.
Isaac W. Clark, *M. M. & C. B*..Fayetteville, N. C.
Cape Girardeau Southwestern Ry.
4-8½ g. 33 m. 3 lo. 20 cars.
Louis Houck, *Gen. Man*..Cape Girardeau, Mo.
W. A. Penney, *Gen. Supt*..Cape Girardeau, Mo.
W. H. Wheeler, *Pur. Agt.* Cape Girardeau, Mo.
Fred Glover, *M. M*........ Cape Girardeau, Mo.
Carolina Central R. R. (*See Ral. & Aug.*)
Carillon & Grenville Ry. 5-6 g. 13 m.
R. W. Shepard, *Pres*.... ....Montreal, Can.
Carson & Colorado R. R. (*See Va. & Truckee*).
Catasauqua & Fogelsville. 4-8½ g. 25 m. 6 lo. 581 c.
C. W. Chapman, *Supt. & P. A.* Catasauqua, Pa.
J. Thomas, *M. M*....... ...Hokendauqua, Pa.
Chas. J. Holbach, *M. C. B*.... Catasauqua, Pa.
Catskill Mountain R. R. 3 g. 16 m. 2 lo. 26 cars.
Charles A. Beach, *Supt* ....Catskill, N. Y.
Cazenovia, Canastota & De Ruyter. (*See U., I. & E.*)

Central and South-Western Railroads (Ga.).
5 g. 1,115 m. 145 lo. 2,008 cars.
W. G. Raoul, *Pres*.......... ......Savannah, Ga.
Wm. Rogers, *Gen. Supt*... ......Savannah, Ga.
C. H. Carson, *Pur. Agt* ....Savannah, Ga.
Cen. Div.: D. D. Arden, *M. M*......Savannah, Ga.
T. F. Warwick, *M. M* ... .Augusta, Ga.
F. Devine, *M. C. B* ....Savannah, Ga.
So.-West'n Div.: T. D. Kline, *Supt* ....Macon, Ga.
D. M. Gugel, *M. M*.......... ....Macon, Ga.
James A. Knight, *M. C. B*....... Macon, Ga.
Central R. R. of N. J. (*See Phil. & Read.; N. J. Cen. Div.*)
Central R. R. of S. C. (*See Wil. & Wel.*)
Central American & Pacific Ry. 3 g. 67 m. 1 lo. 11 c
W. C. Fitzsimmons, *Gen. Supt*..Escuintla, Guat.
Central Branch Union Pac. (*See Mo. Pac.;* (3) *Div.*)
Central Iowa Ry. 4-8½ g. 412 m. 50 lo. 1,959 cars.
E. L. Dudley, *Supt*..........Marshalltown, Ia.
J. G. Johnston, *Asst. Supt* ...Marshalltown, Ia.
D. D. Phelps, *Asst. Supt* ....Monmouth, Ill.
W. R. Coppock, *Asst. Pur. Agt.* Marshalltown, Ia.
John Player, *M. M* ....Marshalltown, Ia.
T. L. Seevers, *M. C. B*...... .Marshalltown, Ia.
Central Ontario Ry. 4-8½ g. 33 m. 4 lo. 66 cars.
J. B. McMullen, *Gen. Man*.........Picton, Ont.
James Falconar, *M. M*..........Trenton, Ont.
Central Pac. R. R. 4-8½ g. 4,303 m. 382 lo. 11,260 c.
A. N. Towne, *Gen. Man* ....San Francisco, Cal.
J. A. Fillmore, *Gen. Supt*...San Francisco, Cal.
R. H. Pratt, *A. G. Supt*....San Francisco, Cal.
J. R. Watson, *Gen. Pur. Agt*..Sacramento, Cal.
A. J. Stevens, *Gen. M. M*.....Sacramento, Cal.
W. McKenzie, *Asst. G. M. M*..Sacramento, Cal.
Benj. Welch, *Gen. M. C. B*....Sacramento, Cal.
G. J. Turner, *Asst. G. M. C. B.* Sacramento, Cal.
Western; Visalia & Tulare Divs. and Northern Ry.
A. D. Wilder, *Supt* ....W. Oakland, Cal.
G. D. Welch, *M. M.* (W. Div.). W. Oakland, Cal.
W. B. Ludlow, *M. C. B.* (W. Div.) do.
S. Johnson, *M. M.* (T. Div.).......Tulare, Cal.
D. Rutherford, *M. M.* (N. Rd.).S. Vallejo, Cal.
Sacramento; Oregon Divs.; and Cal. Pac. R. R.
J. B. Wright, *Supt*. ....Sacramento, Cal.
M. W. Cooley, *M. M.* (*S. Div.*) Sacramento, Cal.
Truckee Div.: J. H. Whited, *Supt.* Wadsworth, Nev.
Geo. Gregg, *M. M*.... .... Wadsworth, Nev.
Wm. McPherson, *F. Car Sh*..Wadsworth, Nev.
Humb't Div.: G. W. Coddington, *Supt.* Carlin, Nev.
W. F. Smith, *M. M*....... ....Carlin, Nev.
J. C. Doughty, *For. Car Sh*... ...Carlin, Nev.
Salt Lake Div.: A. G. Fell, *Supt*.....Ogden, Utah.
James Lamb, *M. M*.. . .. ...Terrace, Utah.
A. Sherburne, *For. Car Sh* .... Ogden, Utah.
Colorado Div.: E. E. Hewitt, *Supt*...Needles, Cal.
St. & Cop. R. R.: R. L. Myrick, *Supt*..Stockton, Cal.
Los Angeles; and Yuma Divs. (So. Pac.):
E. E. Hewitt, *Asst. Supt*....Los Angeles, Cal.
James Velsir, *M. M*.. .....Los Angeles, Cal.
T. T. Gilleland, *For. Car Sh.* Los Angeles, Cal.
Arizona Divs (So. Pac.):
J. A. Muir, *Asst. Supt*.... ......Tucson, Ariz.
W. F. Smith, *M. M*.. .. ..Tucson, Ariz.
Rio Grande (S. Pac.) & El Paso (G. H. & S. A.) Divs.:
C. B. Seymour, *Supt*..........El Paso, Texas.
J. L. Bonner, *M. M* ... .El Paso, Texas.
H. C. Standish, *For. Sh*.....El Paso, Texas.
Galveston, Harrisburg & San Antonio System.
E. G. Thompson, *Supt*..... Houston, Tex.
San Anto. Div.: W. G. Van Vleck, *Supt*., and
J. J. Ryan, *M. M*...........San Antonio, Tex.
D. T. Davis, *Supt. Car Shops.* Harrisburg, Tex.
Louisiana Div.: W. Irwin, *Supt*.....Houston, Tex.
D. C. Smith, *M. M* ....Houston, Tex.
El Paso Div.: E. B. Seymour, *Supt* .El Paso, Tex.
J. L. Bonner, *M. M* ....El Paso, Tex.
Central Texas & N'w'n R. R. (*See Hous. & Tex. Cen.*)
Central Vermont R. R. 4-8½ g. 673 m. 136 lo. 2,789 c.
J. W. Hobart, *Gen. Man*.........St. Albans, Vt.
J. M. Foss, *Asst. Gen. Supt. & M. M.* St. Albans, Vt
No. Div.: I. B. Futvoye, *Supt*.....St. Johns, P. Q.
Rut. Div.: J. Burdett, *Supt*.... ......Rutland, Vt.
N. L. Davis, *M. M. & C. B*....... Rutland, Vt.
Brattleboro & Whitehall R. R., and
Brat. Div.: E. F. Brooks, *Supt*...Brattleboro, Vt.
New London No'n R. R. 143 m. 22 lo. 303 c.
C. F. Spaulding, *Supt. & P. A.* New London, Ct.
I. W. Dow, *M. M*... ....New London, Ct.
S. O. Banks, *M. C. B*.. . .. .. .New London, Ct.
Chagrin Falls & Southern R. R. 3 g. 6 m. 1 lo. 12 c.
W. Hutchings, *Gen. Man*.....Chagrin Falls, O.
J. W. Williams, *Gen. Supt*....Chagrin Falls, O.
Charleston & Savannah Ry. 5 g. 115 m. 17 lo. 190 c.
H. S. Haines, *Gen. Man*......... Savannah, Ga.
C. S. Gadsden, *Gen. Supt*......Charleston, S. C.
H. A. Ulmo, *M. M*.............. Savannah, Ga.
Charlotte, Columbia & Augusta R. R. (*See Rich. & D.*)
Chateaugay R. R. 3 g. 34 m. 7 lo. 365 cars.
A. L. Inman, *Gen. Man*..... Plattsburg, N. Y.
J. M. Davies, *Supt* .....Lyon Mountain, N. Y.
M. L. French, *Asst. Supt*.... Plattsburg, N. Y.
Chatham Ry. 4-8½ g. 9 m.
J. B. Snowball, *Man* .... Chatham, N. B.
Chattaroi Ry. 4-8½ g. 51 miles 11 loco. 483 cars.
F. H. Oliphant, *Gen. Man. & P. A.* Ashland, Ky.
J. R. Martin, *M. M*... .... Ashland, Ky.
Joseph P. Burleigh, *M. C. B*..... .Ashland, Ky.
Cheraw & Chester R. R. (*See Rich. & Dan.;* (2) *Div.*)
Cheraw & Darlington R. R. (*See Wil. & Wel.*)
Cheraw & Salisbury R. R. (*See Wil. & Wel.*)
Cherokee R. R. (*See East & West.*)
Cherry Valley R. R. 4-8½ g. 6 m. 3 lo. 6 cars.
E. T. Herndon, *Supt*..............Midland, Mo
Chesapeake, Ohio & South-Western.
4-9 g. 398 m. 62 lo. 1,345 c.
Jas. L. Frazier, *Supt* .... Louisville, Ky.
H. E. Huntington, *Pur. Agt*.....Louisville, Ky.
J. E. Reeves, *Supt. Trans*......Louisville, Ky.
R. H. Briggs, *Supt. M. P*.........Paducah, Ky.
D. L. Weaver, *M. M* .....Elizabethtown, Ky.
Jno. Fitzgerald, *M. M*.. ....Paducah, Ky.
Chesapeake & Ohio Ry. 4-8½ g. 642 m. 169 l. 5,120 c.
C. W. Smith, *Gen. Man*..... ....Richmond, Va.
D. A. Sweet, *Asst. to Gen. Man* Richmond, Va.
A. S. Emmons, *Pur. Agt*..... ..Richmond, Va.
T. L. Chapman, *Supt. M. P*.. ...Richmond, Va.
Eastern Div.: A. H. Wood, *Supt*..Richmond, Va.
J. N. King, *M. C. B*... ....Richmond, Va.
J. B. Pierce, *M. M*......... ...Richmond, Va.
Hunt. Div.: W. B. Ryder, *Supt* .. Hinton, W. Va.
W. H. Thomas, *M. M*..Huntington, W. Va.
H. C. Bassinger, *M. C. B.* Huntington, W. Va.
Lex. Div.: J. D. Yarrington, *Supt*..Lexington, Ky.
S. R. Tuggle, *M. M*....... ....Lexington, Ky.
K. C. Div.: G. W. Bender, *Supt*..Lexington, Ky.
A. H. Watts, *M. M*....... .. Lexington, Ky.
Chesnire R. R. 4-8½ g. 80 m. 31 lo. 531 cars.
R. Stewart, *Gen. Man*......... ... Keene, N. H.
H. H. Stone, *Pur. Agt*.............Keene, N. H.
F. A. Perry, *M. M* ....Keene, N. H.
A. E. Howard, *M. C. B*.. .... Keene, N. H.
Chester & Lenoir Ry. (*See Rich. & Dan.;* (3) *Div.*)
Chicago, Bur. & Kan. City Ry. (*See C. B. & Q.*)
Chicago, Burlington & Quincy R. R.
4-8½ g. 3,608 m. 545 lo. 21,012 cars.
T. J. Potter, *Gen. Man*... . ... Chicago, Ill.
(1) C., B. & Q., East of Mo. Riv.
H. B. Stone, *Asst. Gen. Man*...... Chicago, Ill.
Wm. Irving, *Gen. Pur. Agt*........Chicago, Ill.
G. W. Rhodes, *Supt. M. P.* .....Aurora, Ill.
Wm. Forsyth, *Mech. Eng*.... ......Aurora, Ill.
Ill. Divs.: J. D. Besler, *Supt*........Galesburg, Ill.
Chi. Div.: Geo. Alexander, *Supt*.... .Aurora, Ill.
L. E. Johnson, *M. M*...............Aurora, Ill.
Galesburg Div.: F. C. Rice, *Supt.* Galesburg, Ill.
Robert Colville, *M. M*......... Galesburg, Ill.
St. L. Div.: W. C. Brown, *Supt*..Beardstown, Ill.
A. Forsyth, *M. M*.......... ...Beardstown, Ill.
Ia. & Mo. Divs.: W. F. Merrill, *Supt.* Burlington, Ia.
East. Div.: O. E. Stewart, *Supt*..Burlington, Ia.
Joel West, *M. M*... .. ..Burlington, Ia.
Mid. Div.: J. B. Maxon, *Supt*.....Ottumwa, Ia.
West'n Div.: J. H. Duggin, *Supt*....Creston, Ia.
C. W. Eckerson, *M. M*.........Creston, Ia.
Chi., B. & Kan. C'y and St. L., Keo. & No.-W'n Rys.
Robt. Law, *Gen. Supt*.......... .Keokuk, Ia.
W. H. Bartlett, *M. M*.............Burlington, Ia.
(2) C. B. & Q., West of Mo. Riv.
G. W. Holdrege, *Asst. Gen. Man.* Omaha, Neb.
C. M. Wead, *Supply Agt*.... .....Omaha, Neb.
D. Hawksworth, *M. M*........Plattsmouth, Neb.

C. M. Wead, *Storek'pr*.......Plattsmouth, Neb.
Bur. & Mo. Riv. & Neb. Ry. Divs.:
T. E. Calvert, *Gen. Supt*. ....Lincoln, Neb.
D. E. Thompson, *Supt*..... .Lincoln, Neb.
E. Bignell, *M. M*...... ....Lincoln, Neb.
R. V. Div.: A. Campbell, *Supt*......McCook, Neb.
A. & N. Div.: J. McConniff, *Supt*...Lincoln, Neb.
Chicago, Fairchild & Eau Claire R. R.
4-8½ g. 20 m. 3 lo. 28 cars.
N. C. Foster, *Gen. Man*.........Fairchild, Wis.
C. I. Wickersham, *Pur. Agt*.... ...Chicago, Ill.
Chicago, Iowa & Dakota Ry. 4-8½ g. 26 m
John Porter, *Gen. Man* .. ..Eldora, Ia.
Chicago, Milwaukee & St. Paul R. R.
4-8½ g. 5,201 m. 626 lo. 19,018 cars.
S. S. Merrill, *Gen. Man*........Milwaukee, Wis.
R. Miller, *Asst. Gen. Man*... Milwaukee, Wis.
J. T. Clark, *Gen. Supt*.........Milwaukee, Wis.
A. J. Earling, *Asst. Gen. Supt.* Milwaukee, Wis.
J. T. Crocker, *Pur. Agt*........Milwaukee, Wis.
J. M. Lowry, *Gen. M. M*.......Milwaukee, Wis.
E. Fairbairn, *M. M* ... . .Milwaukee, Wis.
John Baillie, *Supt. Car Dept*...Milwaukee, Wis.
W. E. Kittridge, *M. C. B*. .....Milwaukee, Wis.
(1) C. & C. B. Div. in Ill.:
G. O. Clinton, *Supt*............ ....Chicago, Ill.
La Crosse Div.: W. G. Collins, *Supt.* Milwaukee, Wis.
P. du C. & M. Pt. Divs.:
S. J. Collins, *Supt*.............Milwaukee, Wis.
(2) C. H. Prior, *Asst. Gen. Supt*..Minneapolis, Minn.
H. & D. Div.: W. M. Kellie, *Supt* do.
J. O. Pattie, *M. M*....... Minneapolis, Minn.
Ia. & Minn. Div.: H. R. Williams, *Supt.* do.
S. Minn. Div.: F. D. Underwood, *Supt.* Lacrosse, Wis.
Riv. & Dub. Divs.: C. W. Case, *Supt.* Dubuque, Ia.
S. Charnley, *M. M*..... . .....Dubuque, Ia.
Ia. & Da. Div.: G. W. Sanborn, *Supt.* Mason City, Ia.
S. Cy. & Da. Div.: W. J. Underwood, *Supt.* Sioux Cy, Ia.
F. H. Moulton, *M. M*.... ......Yankton, Dak.
J. M. Horan, *For*... ....Yankton, Dak.
(3) D. A. Olin, *Asst. Gen. Supt*.........Racine, Wis.
R. & S. W. Divs.: D. L. Bush, *Supt*...Racine, Wis.
John Taylor, *M. M*. ....Racine, Wis.
(4) Northern Div.: L. B. Rock, *Supt.* Milwaukee, Wis.
Wm. E. Kittredge, *M. C. B*..Milwaukee, Wis.
Chicago, Rock Island & Pac. Ry.
4-8½ g. 1,381 m. 309 lo. 8,367 cars.
R. R. Cable, *Pres. & Gen. Man*....Chicago, Ill.
A. Kimball, *V. P. & Gen. Supt*.....Chicago, Ill.
H. F. Royce, *Asst. G. Supt*.... ..Davenport, Ia.
F. A. Marsh, *Pur. Agt*.............Chicago, Ill.
T. B. Twombly, *Gen. M. M*... .....Chicago, Ill.
B. K. Verbryck, *Gen. M. C. B*.......Chicago, Ill.
Ill. Div.: R. H. Chamberlin, *Supt*.....Chicago, Ill.
R. Biester, *M. M*.............. ...Chicago, Ill.
Sam'l Pullman, *M. C. B*..........Chicago, Ill.
Ia. Divs.: Jno. Given, *Supt*.... ...Des Moines, Ia.
J. G. Crockett, *M. M*...............Stuart, Ia.
Jas. E. Morrill, *M. M*...........Davenport, Ia.
Chas. M. Leonard, *M. C. B*......Davenport, Ia.
K. & Des. M. Div.: Jno. Given, *Supt*..Des Moines, Ia.
S. W. Wakefield, *M. M*............Keokuk, Ia.
Henry Kummer, *M. C. B*............Keokuk, Ia.
So.-Wn. Div.: G. F. Walker, *Supt*....Trenton, Mo.
R. O. Carscadin, *M. M*...........Trenton, Mo.
Chas. R. Best, *M. C. B*.......... ..Trenton, Mo.
Chicago, Saginaw & Canada R. R. (*See Det., L. & N.*)
Chicago, St. Louis & New Orleans R. R. (*See Ill. Cen.*)
Chicago, St. Louis & Pittsburgh R. R.
4-9 g. 635 m. 202 lo. 3,510 cars.
James McCrea, *Manager*... .....Columbus, O.
Wm. Mullins, *Gen. Pur. Agt*...Pittsburgh, Pa.
Edward B. Wall, *Supt. M. P* ....Columbus, O.
1, 3 & 5 Divs.: J. F. Miller, *Supt.* Richmond, Ind.
Robert Curtis, *M. M*............Columbus, O
J. L. Copeland, *G. F. Car Shops.* Columbus, O
Wm. Swanston, *M. M*......Indianapolis, Ind.
W. C. Arp, *Gen. For*.........Indianapolis, Ind.
2 & 4 Divs.: Chas. Watts, *Supt.* Logansport, Ind.
W. W. Reynolds, *M. M* .....Logansport, Ind.
Chas. H. Starr, *G. F. C. Shops.* Logansport, Ind.
Chicago, St. Louis & Wn. R. R. 4-8½ g. 88 m. 11 lo. 1,799 c.
F. E. Hinckley, *Gen. Man*.........Chicago, Ill.
A. H. Crocker, *Supt* ....Streator, Ill.
J. N. Chilson, *M. C. B*........ ......Streator, Ill.
Chicago, St. Paul, Minneapolis & Omaha Ry.
4-8½ g. 1,280 m. 181 lo. 5,221 cars.
J. M. Whitman, *Gen. Supt*......St. Paul, Minn.
W. H. S. Wright, *Pur. Agt*......St. Paul, Minn.
Matt. Ellis, *M. M*... ....St. Paul, Minn.
J. J. Ellis, *Asst. M. M*.. . ...St. Paul, Minn.
H. L. Preston, *M. C. B*.............Hudson, Wis.
Ea. & No. Div.: A. A. Hobart, *Supt.* St. Paul, Minn.
St. Paul and Sioux City Div.:
H. Spencer, *Supt* ....St. James, Minn.
H. C. Anderson, *Asst. M. M*.....Sioux Cy, Ia.
Neb. Div.: Jas. McCabe, *Supt*......Omaha, Neb.
Chic., Tex. & Mexican Cent. Ry. (*See Gulf, C. & S. F.*)
Chicago & Alton R. R. 4-8½ g. 849 m. 213 lo. 6,168 c.
C. H. Chappell, *Gen. Man*.........Chicago, Ill.
T. L. Bates, *Supt. of Trans*...Bloomington, Ill.
A. V. Hartwell, *Pur. Agt*.. ....Chicago, Ill.
Wm. Wilson, *Supt. of Mach*...Bloomington, Ill.
Jos. Townsend, *G. For. Car Dept.* do.
Chi. Div.: A. M. Richards, *Supt*.. Bloomington, Ill.
St. L. & K. C. Div.: S. D. Reeves, *Supt.* Roodhouse, Ill.
L. H. Miller, *M. M*......... .. ..Slater, Mo.
Chicago & Atlantic Ry. 4-8½ g. 269 m.
F. Broughton, *Gen. Man* ....Chicago, Ill.
J. H. Parsons, *Supt*...... ....Chicago, Ill.
C. J. Domville, *M. M. & M. C. B* Huntington, Ill.
Chi. & East'n Ill. 4-8½ g. 252 m. 56 lo. 3,500 cars.
O. S. Lyford, *Gen. Supt*.............Chicago, Ill.
D. R. Patterson, *Pur. Agt*... ......Chicago, Ill.
P. W. Drew, *M. Trans*..............Chicago, Ill.
Allen Cooke, *M. M*............. ....Danville, Ill.
Chicago & Grand Trunk Ry. (*See Grand Trunk.*)
Chicago & Great Southern Ry.
4-8½ g. 124 m. 4 lo. 122 c.
Henry Crawford, *Gen. Man*.........Chicago, Ill.
H. Crawford, Jr., *Supt*............Chicago, Ill.
Chicago & Iowa R. R. 4-8½ g. 104 m. 16 lo. 237 cars.
T. J. Potter, *Gen. Man*.... ....Chicago, Ill.
W. H. Holcomb, *Gen. Supt*........Rochelle, Ill.
H. S. Bryan, *M. M*...... .... Aurora, Ill.
Chicago & Northwestern Ry.
4-8½ g. 3,761 m. 637 lo. 21,000 cars.
Marvin Hughitt, *2d V. Prs. & G. M.* Chicago, Ill.
C. C. Wheeler, *Gen. Supt*..........Chicago, Ill.
W. B. Linsley, *Ass't Gen. Supt*....Chicago, Ill.
R. W. Hamer, *Pur. Agt*. .... .Chicago, Ill.
Geo. W. Tilton, *Supt. M. P. & M.;* and
Wm. Campbell, *A. Supt. M. P. & M.* Chicago, Ill.
Wis. and Mil. Divs. & Sheboygan & W'n Ry.:
Ed. J. Cuyler, *Supt*..............Chicago, Ill.
Gal. Div.: Chas. Murray, *Supt*...... Chicago, Ill.
Pen'a Div.: W. F. Fitch, *Supt*.....Escanaba, Mich.
J. Symons, *M. M*........ .... Escanaba, Mich.
Mad. Div.: C. A. Swineford, *Supt*..Baraboo, Wis.
Minn. & Dak Divs.: S. Sanborn, *Asst. Gen. Supt.*
and W. A. Scott, *M. M*.... ....Winona, Minn.
Dak. Cen. Ry.: J. S. Oliver, *Supt*....Huron, Dak.
Ia. Div.: H. G. Burt, *Supt*.... ......Boone, Ia.
Geo. W. Lowe, *M. M*..............Clinton, Ia.
No. Ia. Div.: M. Hopkins, *Supt*...Eagle Grove, Ia.
Win. & St. P. Div.:
W. P. Cosgrave, *Supt*... ......Winona, Minn.
Chicago & West Michigan:
4-8½ g. 409 m. 47 lo. 1,629 cars.
J. B. Mulliken, *V. P. & G. Man.* Muskegon, Mich.
A. M. Nichols, *Gen. Supt*......Gd. Rapids, Mich.
J. K. V. Agnew, *A. G. Supt.* Grand Rapids, Mich.
Allen Bourne, *Pur. Agt*...........Detroit, Mich.
W. F. N. Davis, *M. M*.........Muskegon, Mich.
Chicago & West'n Ind. R. R. 4-8½ g. 50 m. 12 lo. 150 c.
James D. Carson, *Gen. Man*...... ..Chicago, Ill.
R. W. Johnson, *M. M* ....Chicago, Ill.
Cincinnati, Columbus & Hocking Val. Ry.
4-9 g. 25 m. 2 lo. 77 cars.
D. P. Hyatt, *Gen. Man*.. .. ..Dayton, O.
Cin., Georgetown & Portsmouth. 3 g. 35 m. 3 lo. 45 c.
M. Simmons, *Supt*.................Cincinnati, O.
F. Euler, *M. M*. ....Cincinnati, O.
Cincinnati & Green River Ry. 3 g. 11 m. 2 lo 41 c.
G. B. Harper, *Supt*......... ... .Grove, Ky.
Geo. W. Lewis, *M. M*........ ....Grove, Ky.
Cin., Hamilton & Dayton R. R. 4-9 g. 352 m. 92 l. 2,932 c.
C. J. Hepburn, *Gen. Supt*.......Cincinnati, O.
W. F. Stark, *Asst. Supt*... ....Toledo, O.
John Black, *Gen. M. M*.. ....Lima, O

W. H. H. Allison, *M. C. B*........Cincinnati, O.
Cincinnati, Hamilton & Indianapolis R. R.
4–8½ g. 98 m.
C. J. Hepburn, *Supt* ....Cincinnati, O.
Day. & Mich. Div.:
Cincinnati, Indianapolis, St. Louis & Chicago Ry.
4–8½ g. 384 m. 71 lo. 3,279 cars.
J. W. Sherwood, *Supt*.... ...Indianapolis, Ind.
Geo. Tozzer, *Pur. Agt*...... .....Cincinnati, O.
J. S. Patterson, *M. of Mach. & M. C. B.* Cincinn., O
Cincinnati, New Orleans & Texas Pacific Ry. Co.
5 g. 846 m. 123 lo. 3,464 cars.
John Scott, *Gen. Man*.......... .Cincinnati, O
Richard Carroll, *Gen. Supt*.......Cincinnati, O.
R. W. Healey, *Gen. Pur. Agt*.....Cincinnati, O.
James Meehan, *S. M. P. & M*... Cincinnati, O
Cin. So. Div.: W. W. Wells, *Supt*..Somerset, Ky.
J. L. Tomlinson, *Asst. S. M. P.*.. Ludlow, Ky
John Richardson, *M. C. B*.... .Cincinnati, O.
A. Thomson, *M. M*... ...Chattanooga, Tenn
Ala. Gr. S'n Div.: D. McLaren, *Supt.*. and
George Manuell, *M. M*....Chattanooga, Tenn
J. M. Kelly, *M. C. B*.....Chattanooga, Tenn.
V. & M. Div.: E. F. Raworth, *Supt.*. and
M. M.... Vicksburg, Miss.
V.S. & P. Div.: F. Y. Dabney, *Supt.*.Monroe, La.
W. Bell Smith, *M. M. & C. B*.....Monroe, La.
New Orleans & North-Eastern R. R.
T. S. Williams, *Supt*........New Orleans, La.
I. W. Fowle, *M. M*............Meridan, Miss.
Cincinnati Northern Ry.
Geo. L. Barringer, *Gen. Man* ...Cincinnati O.
Cincinnati, Richmond & Chicago R. R. 4–9 g. 37 m.
C. J. Hepburn, *Supt*. ....Cincinnati, O.
Cincinnati, Selma & Mobile R.R. 5 g. 71 m. 6 lo. 148 c.
A. McCollister, *Supt*................Selma, Ala.
H. L. Wright, *Pur. Agt*.............Selma, Ala.
J. M. Levis, *M. M*... ....Marion, Ala.
Cincinnati, Van Wert & Michigan R. R.
4–9 g. 81 m. 7 lo. 168 cars.
E. Garrison, *Gen. Man*............Van Wert, O
D. R. Ennis, *Supt. & P. A*........Van Wert, O.
H. H. Garr, *M. M. & M. C. B*......Van Wert, O.
Cin., Wabash & Mich. Ry. 4–8½ g. 165 m. 13 lo. 402 c
Norman Beckley, *Gen. Man. & P. A.* Elkhart, Ind.
O. W. Lamport, *Supt* ....Wabash, Ind
S. B Tinker, *M. M. & M. C. B* ...Wabash, Ind
Cin., Wash. & Balt. 4–8½ g. 312 m. 65 lo. 1,422 cars
Jas. H. Stewart, *Gen. Man*.......Cincinnati, O.
Edw. Evans, *M. M* ....Chillicothe, O.
T. G. Duncan, *Supt. Car Dept*.......Zaleski, O.
Cincinnati, Wheeling & New York R.R. 4–8½ g. 13 m.
Thos. R. Sharp, *Pres*..........New York, N. Y.
Cincinnati & Eastern Ry. 3 g. 100 m. 7 lo. 133 cars.
S. Woodward, *Gen. Man*... . Cincinnati, O
G. H. Wilber, *Gen. Sup. & Pur. Agt*. Cincinnati, O.
P. W. Naughton, *M. M*...........Newtown, O.
Cincinnati & South-Eastern Ry. 4–8½ g. 18 m.
John V. Patton, *Gen. Man*... .Newport, Ky.
Clarksburg, Weston & Glenville R. R.
3 g. 26 m. 3 lo. 45 cars.
A. H. Kunst, *Pres. & Gen. Man*. Weston, W. Va.
Sam. A. Steel, *M. M*...........Weston, W. Va.
F. Dillie, *M. C. B*........ ....Nottingham, O.
Cleveland, Columbus, Cincinnati & Indiana and Indianapolis & St. Louis Rys. and Dayton & Union R. R. 4–8½ g. 785 m. 246 lo. 7,988 cars.
E. B. Thomas, *Gen. Man*.........Cleveland, O.
J. L. Yale, *Pur. Agt*.......... ....Cleveland, O.
W. F. Turreff, *Gen. M. M*........Cleveland, O.
Col. & Cin. Div.: Robt. Blee, *Supt* .Cleveland, O.
Wm. Garsting, *M. M*......... ..Cleveland, O.
A. G. Steinbrenner, *G. For. Car Dept*. do.
Ind'p'lis Div.: John O. Ewan, *Supt*..Ind'polis, Ind
T. W. Ranson, *M. M*. .....Brightwood, Ind.
N. Mark, *G. For. Car Dept*. Brightwood, Ind.
Ind. & St L Ry.: Tho. Burrows, *Supt*. St. Louis, Mo.
T. W. Ranson, *M. M. & C. B*. Brightwood. Ind.
Day. & Un. Rd.: J. H. Barrett, *Supt*. Cincinnati, O
H. S. Gordon, *For. M. Shops* ......Dayton, O.
Clevel'd, Delphos & St. Louis R.R. 3 g. 56 m. 3 lo. 39 c.
I. H. Burgoon, *Gen. Man*..........Delphos, O.
B. F. Marshall, *M. M*..............Delphos, O.
Cleveland, Indiana & St. Louis R. R.
4–8½ g. 19 m. 2 lo. 20 cars.
J. A. Larned, *Rec. & Supt*......Anderson, Ind.
Cleveland, Mt. Vernon & Delaware R. R.
4–9 g. 144 m. 24 lo. 828 c.
N. Monsarrat, *Gen Supt*.............Akron, O.
G. M. Taylor, *M. M. & C. B*.....Mt. Vernon, O
Cleve., Youngstown & Pitts. R. R. 3 g. 30 m. 3 lo. 138 c.
D. T. Lumley, *Gen. Supt*.. ....Alliance, O.
C. H. Dorman, *M. M. & M. C. B*....Alliance, O.
Cleveland, Lorain & Wheeling Ry.
4–8½ g. 158 m. 31 lo. 1,878 cars.
Oscar Townsend, *Gen. Man* ......Cleveland, O.
Wm. Thornburg, *Supt*.......... . ..Lorain, O.
W. A. Stone, *M. M*..................Lorain, O.
Cleve. & Marietta R. R. (*See Wheel. & Lake Erie.*)
Cleveland & Pittsburg. (*See Penna. Co.; (4) Div.*)
Clifton & Port Hudson R. R. 4–8½ g. 22 m. 3 lo. 12 c.
D. W. Pipes, *Supt*......... ......Clinton, La.
W. F. Lockwood, *M. M*.......... ..Clinton, La.
Clove Branch R. R. 4–8½ g. 4 m. 1 lo. 61 cars.
C. L. Kimball, *Supt*...... ...Mattewan, N. Y.
W. G. Vanbuskirk, *M. M*... Dutchess Jc., N. Y.
Coburg, Peterborough & Marmora Ry.
5–6 g. 47 m. 5 lo. 255 cars.
Jas. R. Barber, *Gen. Supt*... ....Cobourg, Ont.
Jas. Clark, *M. M*... .... Cobourg, Ont
John Tinney, *M. C. B*............Cobourg, Ont.
Colorado Central R. R. (*See Un. Pac.; (4) Div.*)
Columbia & Greenville R. R. (*See Rich. & D.; (3) Div.*)
Columbia & Puget Sound R R 3 g. 21 m. 7 lo. 114 c.
J. L. Howard, *Gen. Supt*.. San Francisco, Cal.
Columbus, Hocking Valley & Toledo Ry.
4–9 g. 324 m. 90 lo. 7,353 cars.
G. R. Carr, *Gen. Supt*.............Columbus, O.
W. M. Greene, *Pur. Agt*..........Columbus, O.
Ira G. Hutchins, *M. M*.... ... .Columbus, O.
J. M. Rockafield, *M. C. B*.... ... .Columbus, O.
Tol. Div.: M. T. Seymour, *Supt*......Columbus, O.
Hock. V. Div.: M. P. L. Booth, *Supt*. Columbus, O.
Ohio Riv. Div.: C. D. Norris, *Supt*.......Logan, O.
Columbus & Eastern R. R. In progress
J. E. Redfield, *Pres*....... ...Columbus, Ohio.
Columbus & Maysville Ry. (*See Cin. & East.*)
Columbus & Rome R. R. 3 g. 33 m. 3 lo. 30 cars.
M. E. Gray, *Supt* .... .Columbus, Ga.
Columbus & Western Ry. 5 g. 89 m. 6 lo. 53 cars
E. A. Flewellen, *Gen. Man*. ...Columbus, Ga.
R. A. Bridges, *M. M* ....Opelika, Ala.
Concord R. R. 4–8½ g. 141 m. 38 lo. 1,235 cars
H. E. Chamberlain, *Supt. & P. Agt*. Concord, N. H.
J. T. Gordon, *M. M. & C. B*.. .Concord, N. H
Concord & Claremont R. R. (*See Northern of N. H.*
Conn. Riv. and Ver. Val. R. Rs. 4–8½ g. 130 m. 42 lo. 554 c.
J. Mulligan, *Supt. & Pur. Agt*. Springfield, Mass.
W. H. Stearns, *M. M. & M. C. B.*. Springfield, Mass.
Conn. & Passumpsic Rivers R. R. (*See Passumpsic*)
Connotton Valley R. R. 3 g. 160 m. 26 lo. 997 cars.
Samuel Briggs, *Gen. Man*.... .Cleveland, O.
B. C. Bosworth, *M. M*.............. .Canton, O.
Cooperstown & Susquehanna Valley R. R.
4–8½ g. 16 m. 2 lo. 14 cars.
Andrew Shaw, *Pres* ....Cooperstown, N. Y.
A. Mumford, *M. M*........Cooperstown, N. Y.
Corning, Cowanesque & Antrim Ry. (*See Syr., G. & C.*)
Cornwall R. R., 4–8½ g. 12 m. 5 lo. 166 cars
J. M. Havard, *G. Supt. & M. M*....Lebanon, Pa.
Levi Bloneh, *M. C. B* ... .Lebanon, Pa.
Cornwall & Lebanon R. R. 4–9 g. 5 m.
J. C. Jennings, *Supt*.......... ...Lebanon, Pa.
Coudersport & Port Allegheny R. R.
3 g. 17 m. 2 lo. 64 cars.
B. A. McClure, *Gen. Supt*.....Coudersport, Pa.
Credit Valley Ry. 4–8½ g. 184 m. 22 lo. 535 cars.
Wm. Whyte, *Gen. Supt*..... ... .Toronto, Ont.
John Macnab, *Pur. Agt*..... ......Toronto, Can
D. Preston, *Mech. Supt*. ....Toronto, Can
Crooked Creek R. R. 3 g. 9 m. 1 lo. 37 cars
Walter C. Willson, *Gen. Man*. Webster City, Ia.
Geo. W. Post, *Pur. Agt*........... Lehigh, Ia
Crown Point Iron Co. R. R. 3 g. 13 m. 4 lo. 113 c.
A. L. Inman, *Gen. Man*..... .Plattsburg, N. Y.
H. L. Reed, *Pur. Agt*......Crown Point, N. Y.
J. M. Davies, *Supt. & M. M*. Crown Point, N. Y.
J. C. Sherman, *M. C. B*..... Crown Point, N. Y.
Cumberland Ry. 4–8½ g. 32 m. 1 lo. 64 c.
J. A. Killam, *Gen. Man*.........Parsboro, N. S.
K. McKinnon, *M. M*.............Parsboro, N. S.
Cumberland Valley R. R. 4–9 g. 127 m. 25 lo. 474 cars.
J. F. Boyd, *Supt*...... .....Chambersburg, Pa.
A. S. Hull, *M. M*......... ..Chambersburg, Pa.
C. Wicke, *M. C. B*...... ...Chambersburg, Pa
Cumberland & Maurice River R. R. 4–8½ g. 20 m.
L. H. Dowdney, *Supt*........Port Morris, N. J.
Cumberland & Penn. R. R. 4–8½ g. 55 m. 28 lo. 625 c.
P. L. Burwell, *Gen Supt & P. A.* Cumberland, Md.
N. W. Howson, *Mast. of Mach*. Mt. Savage, Md.
Nathan Binix, *M. C. B*..... ...Mt. Savage, Md.

D

Danville & New River R. R. 3 g. 43 m. 2 lo. 30 c.
W. T. Sutherlin, *Gen. Man*.......Danville, Va.
W. T. Whittaker, *M. M*...........Danville, Va.
Danbury & Norwalk R. R. 4–8½ g. 36 m. 7 lo. 112 c.
C. M. Crawford, *G. Supt. & P. A.*.S. Norwalk, Ct.
W. H. Wilkinson, *M. M. & C. B*. Danbury, Conn.
Danville, Mocksville & So.-Wn. R. R. 3 g. 28 m.
H. M. Shivler, *Supt*...........Leakesville, N. C.
Danville, Olney & O. R. R.R. 4–8½ g. 110 m. 5 lo. 83 c.
C. E. Henderson, *Rec. & Man*........Olney, Ill.
W. A. Bell, *M. M & C. B*..... ..Kansas, Ill
Dayton & Union R. R. (*See Clev., Col., Cin. & Ind.*)
Dayton & Michigan R. R. (*See Cin., Ham. & Day.*)
Del. Lackawanna & W. and N. Y. Lack. & W. R. Rs.
4–8½ g. 930 m. 436 lo. 31,989 cars.
Wm. F. Halstead, *Gen. Supt*.. ...Scranton, Pa.
G. W. B. Cushing, *Pur. Agt*. ..New York, N. Y.
Walter Dawson, *Mast. of Mach*...Scranton, Pa.
Robt. McKenna *M. C. B* .. . .Scranton, Pa.
Bloomsb'g Div.: C. Graham, *M. M*..Kingston, Pa.
Utica Div.: A. C. Salisbury, *Supt*....Utica, N. Y.
Thos. Thatcher, *M. M*...........Utica, N. Y.
Morris & Essex Div.; Sussex; P. & D. and C. R. Rs.
A. Reasoner, *Supt*..... ....Hoboken, N. J.
W. H. Lewis, *M. M*.......... Kingsland, N. J.
J. W. Baker, *Mast. Car Rep*. ....Dover, N. J.
Oswego & Syracuse Div.:
W. B. Phelps, *Supt*.............Oswego, N. Y.
Jas. Buchanan, *M. M*. .. . Syracuse, N. Y.
Syracuse, Binghamton & New York R. R.
4–8½ g. 81 m. 20 lo. 598 cars.
W. K. Niver, *Gen. Supt*... ...Syracuse, N. Y.
Jas. Buchanan, *M. M*.. ......Syracuse, N. Y.
Cayuga Div.: W. R. Humphrey, *Supt* Ithaca, N. Y.
Delaware, Maryland & Virginia R. R.
4–8½ g. 101 m. 7 lo. 145 cars.
Tho. Groom, *Supt*.... ....Lewes, Del.
Geo. Messick, *M. M*....... ....Lewes, Del.
W. H. Virden, *M. C. B*..............Lewes, Del.
Delaware River R. R. 4–8½ g. 20 m. 3 lo. 4 cars.
E. H. Green, *Supt*..........Pedricktown, N. J.
Delaware Western R. R. (*See Balt. & Phil.*)
Delaware & Chesapeake R. R. (*See Penna.; (4) Div.*)
Delaware & Hudson Canal Co.
4–3 and 4–8½ g. 634 m. 180 lo. 10,799 cars.
C. F. Young, *Gen. Man*......... Honesdale, Pa.
J. White Strong, *Pur. Agt*........Albany, N. Y.
R. C. Blackall, *Supt. of Mach*..... .Albany N. Y.
Susq. Div.: C. D. Hammond, *Supt*. Albany, N. Y.
Tho. Howard, *M. M*.............Oneonta, N. Y.
J. R. Skinner, *M. C. B*. ....Oneonta, N. Y.
Sar. & Ch. Divs.: T. Voorhees, *Supt*...Troy, N. Y.
J. L. Corey, *M. M*......... Green Island, N. Y.
Chr. Körner, *M. C. B*..... Green Island, N. Y.
Pa. Div.: R. Manville, *Supt & Pur Agt*. and
S. H. Dotterer, *M. M*.... ...Carbondale, Pa.
T. Orchard, *M. C. B*......... Carbondale, Pa.
Denver Circle R. R. 3 g. 12 m. 7 lo. 15 cars
Theo. C. Henry, *Gen. Man*.........Denver, Col.
J. H. Bedson, *Gen. Supt*...........Denver, Col.
Denver, Utah & Pacific R. R. 3 g. 34 m. 2 lo. 58 c.
L. M. Fouts, *Supt*...... ....Denver, Col.
Denver & New Orleans. 4–8½ g. 140 m. 11 lo. 400 c.
C. W. Fisher, *Gen. Man*............Denver, Col.
Chas. Wheeler, *Pur. Agt*.... .....Denver, Col.
J. H. Kirk, *M. M. & M. C. B*..... ..Denver, Col.
Denver & Rio Grande Ry. 3 g. 1,065 m. 222 lo. 5,932 c.
D. C. Dodge, *Gen. Man*..............Denver, Col.
C. M. Hobbs, *Pur. Agt* ... .Denver, Col.
N. W. Sample, *Supt. M. P. & M* ...Denver, Col.
(1) Col & N. M. Div.: R. E. Ricker, *G. S.* Denver, Col
1st Div.: W. W. Borst, *Supt*.......S. Pueblo, Col.
2d Div.: Cole Lydon, *Supt*..... ... Alamosa, Col.
3d Div.: G. W. Cook, *Supt*........Leadville, Col.
4th Div.: R. M. Ridgway, *Supt*.......Salida, Col.
(2) Utah Div.: W. H. Bancroft, *G. S.* S. Lake City, Utah.
Des Moines, Osceola & Southern R. R.
3 g. 100 m. 7 lo. 253 cars.
L. B. Harding, *Gen. Man*.......Des Moines, Ia.
Henry Stivers, *Supt*.......... .....Osceola, Ia.
L. D. Berry, *M. M*... ....Osceola, Ia.
Elias Tonet, *M. C. B*...............Osceola, Ia.
Des Moines & Ft. Dodge. 4–8½ g. 144 m. 13 lo. 350 c.
C. N. Gilmore, *Supt* ....Des Moines, Ia.
John McGrayel, *M. M*......Grand Junction, Ia.
E. A. Avery, *M. C. B* ....Grand Junction, Ia.
Det., Bay City & Alpena R. R. 3–2 g. 48 m. 5 lo. 227 c.
Milo Eastman, *Supt* .... East Tawas, Mich.
Det., Gr. H. & Mil. Ry. 4–8½ g. 189 m. 39 lo. 696 c.
W. J. Spicer, *Gen. Man*... ....Detroit, Mich.
John S. Lorimer, *Storekeeper*....Detroit, Mich.
W. J. Morgan, *Supt*...............Detroit, Mich.
H. Roberts, *Mech. Supt*......Port Huron, Mich.
R. P. Baillie, *M. M*. ....Ft. Gratiot, Mich.
Det., Lansing & No'n R. R. 4–8½ g. 222 m. 84 lo. 1027 c
John B. Mulliken, *Gen. Man*......Detroit, Mich.
Allan Bourn, *Pur. Agt*.............Detroit, Mich.
Thos. M. Fish, *Gen. Supt*...........Ionia, Mich.
G. C. Watrous, *M. M. & C. B* ......Ionia, Mich.
Det., Mack. & Marq. R.R. 4–8½ g. 152 m. 16 lo. 1,112 c.
D. McCool, *Gen. Supt*... .....Marquette, Mich.
W. J. Tench, *Pur. Agt*........Marquette, Mich.
John B. Wilson, *Mech. Supt*....Marquette, Mich.
Dorchester & Delaware R.R. (*See Penna. (4) Del. Div.*)
Dubuque & Dakota R. R. 4–8½ g. 64 m. 2 lo. 54 cars.
A. C. Goodrich, *Supt*...............Waverly, Ia.
W. S. Couch, *Pur. Agt*........ .... Dubuque, Ia.
Duck River Valley R. R. (*See Nash., Chat. & St. L.*)
Dunkirk, Allegheny Valley & Pittsburgh R. R.
4–8½ g. 91 m. 14 lo. 102 cars.
D. Thayer, *Gen. Supt*............Dunkirk, N. Y.
R. C. Moore, *Pur. Agt*...... .New York, N. Y.
J. C. Haggett *M. M. & C. B*.....Dunkirk, N. Y.

E

East Alabama Ry. 5 g. 22 m. 3 lo. 19 cars.
W. W. Barnes, *Supt*...............Opelika, Ala.
East Broad Top R. R. 3 g. 30 m. 7 lo. 260 cars.
A. W. Sims, *Supt* ....Orbisonia, Pa.
A. W. Greenwood, *M. M*.... ....Orbisonia, Pa.
East St Louis & Carondelet Ry. 4–9 g. 4 lo. 27 c.
Joseph Hill, *Gen. Supt*......East St. Louis, Ill.
East Tenn. & Western North Car. R. R.
3 g. 34 m 2 lo. 70 cars.
Thomas E. Matson, *Supt*..Elizabethton, Tenn.
East Tennessee, Virginia & Georgia R. R.
5 g. 1,453 m. 173 lo. 3,670 cars.
Henry Fink, *V. P. & Gen. Man*. Knoxville, Tenn
J. F. O'Brien, *Gen. Supt*.......Knoxville, Tenn
J. E. Wilcox, *Pur. Agt*. ......Knoxville, Tenn.
East Tenn. Div. and No. Car. and Ohio Branches:
F. K. Huger, *Supt*...........Knoxville, Tenn.
B. J. Sitton, *M. M*..... . ....Knoxville, Tenn.
Jos. Armbruster, *M. C. B*....Knoxville, Tenn.
Alabama Div.: J. M. Bridges, *Supt*...Selma, Ala.
Simon Gay, *M. M*... .... Selma, Ala.
W. W. Pierce, *M. C. B*. ....Selma, Ala.
Memphis & Charleston R. R. (Div.):
R. B. Pegram, Jr., *Supt*..... Memphis, Tenn
H. N. Burford, *M. M*... ......Memphis, Tenn
Atlanta Div.: J. W. Fry, *Supt*. ....Atlanta, Ga.
W. A. Walden, *M. M*........ ....Atlanta, Ga
J. H. Perkins, *M. C. B*. ....Atlanta, Ga
Brunswick Div.: J. E. Mallory, *Supt*..Macon, Ga.
East & West R. R. of Ala. 3 g. 110 m. 9 lo. 85 c.
John Postell, *Manager*.......... Cedartown, Ga
M. M. & C. B........Cedartown, Ga
Eastern R. R. 4–8½ g. 283 m. 110 lo. 2,268 cars.
Payson Tucker, *Gen. Man*........Boston, Mass.
D. W. Sanborn, *Mast. of Trans*..Boston, Mass.
G. F. Hurd, *Pur. Agt*...... . ..Boston, Mass.
Amos Pilsbury, *S. M. P. & M*. ..E. Boston, Mass.
A. M. Waitt, *G. For. Car Dept*.... Salem, Mass.
Con'y Div.: J. W. Sanborn, *Supt*.. Wolfboro J., N. H.
Eastern Kentucky R. R. 4–8½ g. 34 m. 5 lo. 160 c.
H. W. Bates, *Man. & Pur. Agt*... Riverton, Ky.
H. W. Crawford, *M. M*........Hunnewell, Ky.
Eastern (Maine) R. R. (*See Maine Central.*)
Eastern Shore R. R. 4–8½ g. 38 m. 3 lo. 9 c.
W. Thompson, *Supt*.........Princess Anne, Md.
F. Strattner, *M. M*......... Princess Anne, Md.
Elberton Air-Line R.R. (*See Rich. & Dan. N. G. Brs.*)
Elizabeth City & Norfolk R. R. (*See Norfolk So.*)
Elizabethtown, Lex. & Big Sandy R.R. (*See Ches. & O.*)
Elmira, Cortland & Northern R. R. 4–8½ g
Geo. S. Sadler, *Supt*.............Elmira, N. Y.
Thos. Kearsley, *M. M*............Elmira, N. Y.
Emmitsburg R. R. (*See Western Md.*)
Erie & Huron Ry. 4–8½ g. 40 m.
E. O. Bickford, *Gen Man*.........Toronto, Ont.
Erie & Pittsburg R. R. (*See Penna. Co.; (3) Div.*)
Etowah & Deaton's R. R. 3 g. 9 m.
D. M. Rogers, *Gen. Man*...........Etowah, Ga.
Eureka Springs Ry 4–8½ g. 19 m. 1 lo. 9 cars.
Powell Clayton, *Gen. Man*. Eureka Springs, Ark.
Eureka & Palisade R. R. 3 g. 97 m. 7 lo. 125 cars.
B. Gilman, *Gen. Supt & Pur. Agt*..Eureka, Nev.
J. M. Crawford, *M. M*.............Palisade, Nev.
A. S. Longley, *M. C. B*....... ...Palisade, Nev.
European & North American R. R. (*See Maine Cen.*)
Evansville, Rockport & E'n Ry. 4–9 g. 71 m. 5 lo. 98 c
H. L. Shepard, *Supt*.............Evansville, Ind.
Evansv. & Terre Haute. 4–8½ g. 169 m. 26 lo. 973 c.
D. J. Mackey, *Gen. Supt*...... Evansville, Ind.
John Torrance, *M. M*.... ......Evansville, Ind.

F

Fitchburg R. R., 4–8½ g. 152 m. 100 lo. 3,430 cars.
John Adams, *Gen. Supt*...........Boston, Mass.
F. S. Pratt, *Pur. Agt* ....Boston, Mass.
Orlando Stewart, *Supt. M. P*......Boston, Mass.
W. A. Foster, *Asst. Supt. M. P.*. Fitchburg, Mass.
J. W. Marden, *M. C. B* ... Charlestown, Mass.
Flint & Pere Marq. 4–8½ g. 346 m. 72 lo. 2,100 cars.
H. C. Potter, *Gen. Man*..... E. Saginaw, Mich.
D. Edwards, *Asst. Gen. Man*..E. Saginaw, Mich
G. G. Cook, *Pur. Agt*.........E. Saginaw, Mich.
Sanford Keeler, *Gen. Supt*..E. Saginaw, Mich.
W. F. Potter, *Supt.* (E. Div.)..E. Saginaw, Mich.
M. V. Meredith, *Supt.* (W. Div.) E. Saginaw, Mich.
T. J. Hatswell, *M. M* ..... .E. Saginaw, Mich.
H. M. Perry, *M. C. B*..........E. Saginaw, Mich.
Florida Ry. & Nav. Co. 5 g. 488 m. 31 lo. 397 c.
D. E. Maxwell, *Gen. Supt*.... Fernandina, Fla.
R. V. Dohoney, *M. M. & C. B* Fernandina, Fla.
Florida Southern Ry. 3 g. 91 m. 6 lo. 96 cars.
Sherman Conant, *Gen. Man*... ...Palatka, Fla.
Jas. D. Hollister, *Supt*............Palatka, Fla.
Fonda, Johnst'n & Gloversv. 4–8½ g. 26 m. 5 lo. 35 c.
Lawton Caten, *Supt*.. ......Gloversville, N. Y.
G. V. Putman, *M. M*....... Gloversville, N. Y.
Fond du Lac, Amboy & Peoria. 3 g. 30 m. 2 lo. 35 c.
Alonzo Kinyon, *Supt. & P. A.* Fond du Lac, Wis.
Fort Dodge & Fort Ridley R. R. (*See Minn. & St. L.*)
Franklin & Prov. & Hopkinton. 22 m.
E. T. Logee, *Supt* ....Milford, Mass.
Ft. Madison & No.-West'n Ry. 3 g. 45 m. 5 lo. 127 c.
S. B. Kenrick, *Supt. & Pur. Agt*. Ft. Madison, Ia
I. L. Lamb, *M. M. & C. B*..... Ft. Madison, Ia.
Ft. Wayne, Cin. & Louisv. 4–8½ g. 128 m. 10 lo. 250 c.
White Water R. R 4–8½ g. 65 m. 5 lo. 170 cars.
W. W. Worthington, *Gen. Supt*...Ft. Wayne, Ind.
T. H. Haberkorn, *M. M*.........Ft. Wayne, Ind.
Wm. Knight, *M. C. B*...........Ft. Wayne, Ind.
Ft. Worth & Denver City Ry. 4–8½ g. 1:4 m. 8 lo. 443 c.
C. L. Frost, *Gen. Supt* ......Fort Worth, Tex.
Freehold & New York Ry. 4–8½ g. 15 m. 4 lo. 40 c.
J. E. Ralph, *Supt. & Pur. Agt*..Keyport, N. J.
M. C. Mooney, *M. M*........ Freehold, N. J.
C. H. Snedeker, *M. C. B*...... Freehold, N. J.
Fulton County N. G. Ry. 3 g. 61 m. 4 lo. 168 cars.
A. C. Atherton, *Gen. Supt. & P. Agt*. Lewiston, Ill.

G

Gainesville & Dahlonega R. R. 3 g. 15 m.
W. P. Price, *Pres*...............Dahlonega, Ga.
Gainesville, Jefferson & Southern R.R. (*See Cen. of Ga*)
Gal., Harrisburg & San Antonio Ry. (*See Cen. Pac.*)
Galveston, Houston & Hend. R.R. (*See Mo. Pac. (5) Div.*)
Galveston, Sabine & St. Louis Ry.
4–8½ g. 15 m. 2 lo. 27 cars.
Brad. Barner, *Gen. Man*.... ..Longview, Tex.
Chas. H. Jewell, *Gen. Supt*.....Longview, Tex.
Geneva, Ithaca & Sayre R. R. (*See Lehigh Val.*)
George's Creek & Cumberland R. R.
4–9 g. 25 m. 6 lo. 212 cars.
J. A. Millholland, *Gen. Man*..Cumberland, Md.
Georgetown & Lane's R. R. 5 g. 36 m. 2 lo. 52 c.
G. W. Earle, *Gen. Supt*......Georgetown, S. C
Georgia R. R. 5 g. 307 m. 42 lo. 1,017 cars.
John W. Green, *Gen. Man*.........Augusta, Ga.
John S. Cook, *M. M*.................Augusta, Ga.
T. M. Preval, *M. C. B*........ .....Augusta, Ga.
Georgia Pacific Ry. 5 g. 218 m.
I. Y. Sage, *Gen. Supt*........Birmingham, Ala.
S. H. Purcell, *Div. Supt*.......Greenville, Miss.
G. H. Barnum, *Div. Supt*... ..Columbus, Miss.
J. A. Branigan, *M. M*.... . . .Greenville, Miss.
J. B. Shelton, *M. C. B* ..... .Greenville, Miss.
Gettysburg & Harrisburg R. R. 4–9 g. 21 m.
W. H. Woodward, *Supt*. Pine Grove Furnace, Pa.
Grand Haven R. R. (*See Chic. & W. Mich.*)
Grand Junction Ry. (*See Midland of Can.*)
Grand Rapids, Indiana & Mackinaw. (*See Gr. R. & I.*)
G'd Rap., Newaygo & L. S. R. R. (*See Chic. & W. M.*)
Grand Rapids & Indiana. 4–8½ g. 528 m. 52 lo. 1,724 c.
W. O. Hughart, *Gen. Man*. Grand Rapids, Mich.
W. R. Shelby, *Pur. Agt*....Grand Rapids, Mich.
S. D. Bradley, *M. M*...... Grand Rapids, Mich.
No'n Div.: J. M. Metheany, *Supt*. G'nd Rap., Mich.
So'n Div.: P. S. O'Rourke, *Supt*. Fort Wayne, Ind.
Grand Southern Ry. of New Brunswick.
4–8½ g. 82 m. 5 lo. 54 cars.
J. N. Greene, *Gen. Man*..... .St. George, N. B.
F. W. Holt, *Supt*............. St. George, N. B.
Thomas Logan, *M. M*...... .St. George, N. B.
Grand Tower & Carbondale. 4–8½ g. 25 m. 6 lo. 357 c.
T. M. Williamson, *Supt. & P. A*..Gr. Tower, Ill.
Hugh Smith, *M. M. & C. B*....Grand Tower, Ill.
Grand Trunk Ry. 4–8½ g. 2,332 m. 660 lo. 16,330 c.
Joseph Hickson, *Gen. Man*.. ...Montreal, Can.
Jas. Stephenson, *Supt*.......... Montreal, Can
Wm. Wainright, *Asst. Man*......Montreal, Can.
Mont. Divs.: W. J. Spicer, *Supt*. Montreal, Can.
Jno. Taylor, *Gen. Storekeeper*. Montreal, Can.
Herbert Wallis, *Mech. Supt*...Montreal, Can.
Wm. McWood, *Supt. Car Dept*. Montreal, Can.
J. Haskoni, *Div. M. S* .. ... Richmond, P. Q.
Gt. West'n Div.: Chas. Stiff, *Supt*. Hamilton, Ont.
E. Baines, *Store Kpr*........ ..London, Ont.
C. K. Domville, *Mech. Supt*.. .Hamilton, Ont.
C. F. Hanson, *Lo. For*...........London, Ont.
J. D. McIlwain, *Supt. Car Dept*..London, Ont.
Chi. & Gr. Trunk Ry. 4–8½ g. 339 m. 103 lo. 1,191 c.
W. J. Spicer, *Gen. Man*........ Chicago, Ill.
W. H. Pettibone, *Supt*. ..Battle Creek, Mich.
A. Judd, *Pur. Agt*.... .....Fort Gratiot, Mich.
H. Roberts, *Mech. Supt*.........Detroit, Mich.
Midland of Can. 4–8½ g. 471 m. 44 lo. 1,423 c.
W. B. Ferguson, *Supt* ....Peterboro, Ont.
J. D. Barnet, *Mech. Supt*... .Peterboro, Ont.
Grand Trunk, Georgian Bay & Lake Erie Ry. (*See G. T.*)
Great Western Ry. (*See Grand Trunk; G. W. Div.*)
Green Bay, Winona & St Paul R. R.
4–8½ g. 250 m. 19 lo. 623 cars.
Timothy Case, *Gen. Man. & P. A* Green Bay, Wis.
A. Fenwick, *M. M*.......... Ft. Howard, Wis.
Green Cove Spring & Melrose R.R. 3 g. 32 m. 1 lo. 11 c.
S. Ackley, *Pres*..... ....Philadelphia, Pa.
Greenwich & Johnsonville Ry. 4–8½ g. 15 m. 1 lo. 7 c.
J. H. Thompson, *Supt* ....Greenwich, N. Y.
Gulf, Col. & Santa Fé Ry. 4–8½ g. 536 m. 51 lo. 1,400 c.
Webster Snyder, *Gen. Man*..Galveston, Texas.
Jno. W. Thorne, *Pur. Agt*....Galveston, Texas.
W. H. Reilly, *M. M. & M. C. B*. Galveston, Texas.
Gulf, W'n Texas & Pac. Ry. 4–8½ g. 68 m. 6 lo. 74 c.
M. D. Monserrate, *Supt. & Pur. Agt*. Cuero, Tex.
James Mooney *M. M*....... .. Cuero, Texas.

H

Hannibal & St. Jo. R. R. 4–8½ g. 292 m. 76 lo. 1,906 c.
J. F. Barnard, *Gen. Man* .... Chicago, Ill.
S. E. Crance, *Gen. Supt* ... .Hannibal, Mo.
Wm. Irving, *Pur. Agt*............Hannibal, Mo.
N. Paradise, *Supt. M. P. & C. D*.. Hannibal, Mo.
Chas. Coller, *For. Car Dept*. ....Hannibal, Mo.
Hanover Branch R. R. 4–8½ g. 8 m. 2 lo. 18 cars.
E. Y. Perry, *Supt* ...... South Hanover, Mass.
Hanover Junction, Hanover & Gettysburg R. R.
4–8½ g. 74 m. 10 lo. 140 cars.
H. D. Scott, *Gen. Supt*.........Gettysburg, Pa.
John J. Bingley *M. M*.............Hanover, Pa.
Jas. Harthorn, *M. C. B*....... ...Hanover, Pa.
Harrisburg & Potomac R. R. 4–8½ g. 35 m. 3 lo. 35 c.
R. H. Middleton, *Supt*......Boiling Springs, Pa.
Hartford & Conn. Val. R. R. 4–8½ g. 47 m. 9 lo. 196 c.
O. M. Shepard, *Asst. Supt*.... New Haven, Ct.
John Henry, Jr., *M. M*........Hartford, Conn.
Hartford & Conn. W'n R.R. 4–8½ g. 110 m. 16 lo. 495 c.
John F. Jones, *Supt*....... .. . .Hartford, Ct.
J. C. Barton, *M. M*.................Hartford, Ct.
Hartwell R. R. (*See Rich. & Dan.; N. G. Brs.*)
Hecla & Torch Lake R. R. 4–1 g. 5 m. 5 lo. 165 cars.
W. A. Childs, *Gen. Man* ... ...Calumet, Mich.
Herkimer, Newport & Poland Ry.
3–6 g. 17 m. 2 lo. 24 cars.
Albert Wilber, *Supt*..........Herkimer, N. Y.
Hobart & Manistee River R. R. 3 g. 9 m. 2 lo. 42 c.
H. W. Marsh, *Supt*. ....Hobart, Mich.
Hot Springs R. R. 3 g. 25 m. 3 lo. 37 cars.
J. N. Conger, *Supt*... ....Hot Springs, Ark.
L. Finlay, *M. M*.................Malvern Ark.
Housatonic R. R. 4–8½ g. 126 m. 25 lo. 571 cars.
W. H. Yeomans, *Supt*.. ....Bridgeport Ct.
D. S. Draper, *Pur. Agt*..........Bridgeport, Ct.
N. Slingland, *M. M*.............Falls Village, Ct.
J. J. Ferris, *M. C. B*....... ...Falls Village, Ct.
Houston Belt Ry. 4–8½ and 3 gauge 16 miles.
S. L. Werden, *V. P. & Gen. Man*. Houston, Tex
Houston, East & West Tex. Ry. 3 g. 150 m. 10 lo. 570 c.
Paul Bremond, *Pr. & Pur. Agt*..Houston, Tex.
E. L. Bremond, *Gen. Man*........Houston, Tex.
B. O. Diffey, *M. M*............ .Houston, Tex.
C. F. Schelewa, *M. C. B*. .... Houston, Texas.
Houston & Tex. Cen. Ry. 4–8½ g. 750 m. 78 lo. 2,526 c.
J. Waldo, *V. Pr. & Gen. Man*.... Houston, Tex.
A. H. Swanson, *Gen. Tr. Man*.....Houston, Tex.
Pur. Agt........New York, N. Y
L. C. Noble, *Gen. M. M*...........Houston, Tex.
James McGee, *M. C. B*.. ....Houston, Tex.
So. & Wn. Divs.: M. G. Howe, *Supt*. Houston, Tex.
No. & Mi. Divs.: G. A. Quinlan, *Supt.*, and
C. H. Burns, *Asst. M. M*......Corsicana, Tex.
No.-Wn. Div.: Donald Allen, *Supt*.... Waco, Tex.
Humeston & Shenandoah R. R.
4–8½ g. 113 m. 18 lo. 80 cars.
F. O. Wyatt, *Gen. Man*......... ...Clarinda, Ia.
C. H. Warren, *Supt*.......... . .Clarinda, Ia.
W. B. Snyder, *M. M*. ....Shenandoah, Ia.
Huntingdon & Br. Top Mt. 4–8½ g. 62 m. 18 lo. 69 c.
Geo. F. Gage, *Gen. Man*. .. .Huntingdon, Pa.
Samuel B. Knight, *Pur. Agt*..Philadelphia, Pa.
William Barkla *M. M*...... .....Saxton Pa.

I

Illinois Central R. R. 4–8½ g. 1,928 m. 334 lo. 8,565 c.
E. T. Jeffery, *Gen. Supt* .... .Chicago Ill
O. Ott, *Pur. Agt*...... ....Chicago, Ill
Henry Schlacks, *Supt. of Mach*....Chicago, Ill
W. B. Snow, *M. M. Car Works*.....Chicago, Ill
(1) Ill. & Ia. Divs.: C. A. Beck, *Supt*.....Chicago, Ill
Chic. Div.: T. J. Hudson, *Supt* . ... Cairo, Ill
Wm. Renshaw, *M. M* ....Chicago, Ill
Mid. Div.: H. L. Frisbie, *Supt*.. ..... Pontiac Ill
Spring. Div.: W. Wilkinson, *Supt*. Springfield, Ill.
W. B. McKenna, *M. M*... . ...Clinton, Ill.
No'n Div.: J. C. Jacobs, *Supt*...........Amboy, Ill.
J. B. Edams, *M. M*.............. ...Amboy, Ill.
Ia. Div.: M. Gilleas, *Supt*....... ... Dubuque, Ia.
Thos. W. Place, *M. M*....... .Waterloo, Ia.
(2) So. Divs.: C. M. Sheafe, *Supt*....New Orleans, La.
Geo. W. Baxter, *M. C. B* ..McComb City, Miss.
So. Div.: J. M. Turner, *Supt*. do.
W. B. McKenna, *M. M*....McComb City, Miss.
Miss. Div.: J. G. Mann, *Supt*......Jackson, Tenn.
J. F. White, *M. M*........Water Valley, Miss.
Illinois Midland Ry. 4–8½ g. 176 m. 12 lo. 611 cars.
D. H. Conklin, *Rec. & Gen. Man*......Decatur, Ill.
O. E. Grady, *Train Mast*............Decatur, Ill.
Frank Young, *For. Shops*............. Paris, Ill.
Illinois & St. Louis R. R. 4–8½ g. 19 m. 10 lo. 450 c.
C. H. Sharman, *Gen. Supt. & P. A* St. Louis, Mo.
D. J. Timlin, *M. M*... ....Belleville, Ill.
Charles Rothe, *M. C. B*..... .. E. St. Louis Ill
Indiana, Bloomington & Western Ry.
4–8½ g. 826 m. 112 lo. 4,067 cars.
C. E. Henderson, *Gen. Man*. Indianapolis, Ind.
I. H. Wilson, *Gen. Supt* .....Indianapolis, Ind.
H. C. Norton, *Pur. Agt*...... Indianapolis, Ind.
Jos. S. Porter, *M. M*...............Sandusky O.
B. Warren, *Gen. M. M*.........Indianapolis, Ind.
Peoria Div.: E. Hiserodt, *M. M* .... Urbana, Ill.
St. Louis Div.: John King, *M. M*. Indianapolis, Ind.
Ohio So. Rd.: W. H. Van Tassall, *S*. Springfield, O.
A. J. Sanborn, *M. M* .... Springfield, O.
Indiana, Illinois & Iowa R.R. 4–8½ g. 104 m. 5 lo. 83 c.
F. M. Drake, *Gen. Man*..... .....Kankakee, Ill.
T. P. Shonts, *Gen. Supt*..........Kankakee, Ill.
R. C. Ackley, *M. M*................Kankakee, Ill.
Indiana & Illinois Southern Ry. 3 g. 91 m. 3 lo. 69 c.
W. C. Lyon, *Gen. Man. & P. Agt*. Robinson, Ill.
J. S. Pickering, *M. M. & C. B*.. Effingham, Ill.
Indianapolis, Decatur & Springfield Ry.
(*See Ind., Bloom. & West'n.*
Indianapolis & Evansville Ry. 4–8½ g. 54 m.
D. J. Mackey, *Supt* .. ..Evansville Ind.
Indianapolis & St. Louis R. R. (*See C., C., C. & I.*)
Indianapo. & Vincennes R. R. (*See Penna. Co. (8) Div.*)
Intercolonial Ry. 4–8½ g. 846 m. 135 lo. 4,500 cars.
David Pottinger, *Chief Supt*.....Moncton, N. B.
T. V. Cook, *Gen. Storekeeper*...Moncton, N. B.
H. A. Whitney, *Mech. Supt*......Moncton, N. B
Ewd. D. Shaffer, *M. C. B* ....Moncton, N. B.
M. & C. Div.: J. E. Price, *Supt*..Cambellton, N. B.
Hal. & St. J. Div.: J. J. Wallace, *Supt*..Truro, N. F
Q. & St. F. Div.: A. McDonald, *Supt*. Riv. du Loup, Q.
International Ry. 4–8½ g. 69 m. 7 lo. 12 cars.
D. E. McFee, *Supt* ....Sherbrooke, Que
J. Ruelle, *M. M*........ ......Sherbrooke, Que.
W. Charest, *M. C. B*..........Sherbrooke, Que.
International & Gt. N'n R. R. (*See Mo. Pac.; (5) Div.*)
Iowa Falls & Sioux City R. R. (*See Ill. Cen.*)
Iron Ry. (*See Tol., Cin. & St. L.*)
Iron Mountain & Helena R. R. (*See Mo. Pac.; (4) Div.*)
Ithaca Auburn & Western Ry. (*See Southern Cen.*)

J

Jacksonville So.-E'n R. R. 4–8½ g. 54 m. 5 lo. 69 c.
E. S. Greenleaf, *Supt*..........Jacksonville, Ill.
Ira F. Petrie, *M. M*............Jacksonville, Ill.
Jacksonville, St. Augustine & Halifax River Ry.
3 g. 76 m. 3 lo. 27 cars.
W. L. Crawford, *Gen. Man*..Jacksonville, Fla.
H. S. Ming, *Supt*. .. ..Jacksonville, Fla.
Jacksonv., Pensacola & Mob. (*See Fla. Cent. & W.*)
Jacksonville, Tampa & Key West Ry. 5 g. 56 m.
G. W. Bentley, *Gen. Man*. ..Jacksonville, Fla.
M. R. Moran, *Supt* ....Jacksonville, Fla.
Jamesville & Washington R. R. (*See Norfolk So'n.*)
Jeffersonv'l, Madison & Indpls. R. R. (*See (9) Pa. Co.*)
Jersey City & Albany R. R. 4–8½ g. 38 m.
J. W. McCulloh, *Manager* ...Jersey City, N. J.
Jersey City & Bergen R. R. 4–8½ g. 6 m. 2 lo. 13 c.
T. M. Sayre, *Gen. Supt*........Jersey City, N. J.
Jersey Shore, Pine Creek & Buff. Ry. (*See Phil. & R.*)
Junction & Breakwater R.R. (*See Del., Md. & Va.*

K

Kaaterskill R. R. 3 g. 8 m.
J. H. Jones, *Supt*..... ....Rondout, N. Y.
Kankakee & Seneca R.R. (*See Cin., Ind., St. L. & Chi.*)
Kansas Central R. R. (*See Union Pacific.*)
Kansas City, Fort Scott & Gulf R. R.
4–8½ g. 389 m. 75 l. 2,037 c.
Geo. H. Nettleton, *Gen. Man*..Kansas City, Mo.
L. W. Towne, *Supt*..... ......Kansas City, Mo.
H. P. Jacques, *Pur. Agt*..... Kansas City, Mo.
J. S. McCrum, *M. M* ....Kansas City, Mo.
A. N. Montier, *M. C. B*.... ....Kansas City, Mo.
Kansas Cy, Lawrence & So. Kan. (*See At., Top. & S. F.*)
Kansas City, Springfield & Memphis R. R.
4–8½ g. 283 m. 10 lo. 456 cars.
George H. Nettleton, *Pres*....Kansas City, Mo.
L. W. Towne, *Supt*..........Kansas City, Mo.
H. P. Jacques, *Pur. Agt*.......Kansas City, Mo.
J. S. McCrum, *M. M*........ ..Kansas City, Mo.
A. H. Montier, *M. C. B*........Kansas City, Mo.
Kansas City, St. Joseph & Council Bluffs; and St. Jo. & Des Moines R. Rs. 4–8½ & 3 g. 368 m. 41 lo. 1,148 c.
J. F. Barnard, *Gen. Supt*.........St. Joseph, Mo.
J. R. Hardy, *Supt* .... St. Joseph, Mo.
Wm. Irving, *Pur. Agt*... .... Chicago, Ill.
F. A. Chase, *M. M* .. .. St. Joseph, Mo.
Thos. Aylesbury *G. For. Car. Dep*. St. Joseph, Mo.

Kansas City & Southern Ry. 4-8½ g. In progress.
Wm. Bailey, *Pres*..........Kansas City, Mo.
Kansas Coal Belt R. R. 4-8½ g. In progress.
C. H. Malin, *Gen. Man*..........Girard, Kan.
F. A. Hill, *Supt*..........Girard, Kan.
Kansas & Gulf Short Line R. R. 33 m. 2 lo. 32 cars.
Eli Culverhouse, *Gen. Man*..........Tyler, Tex.
V. K. Stevenson, *Pur. Agt*.... New York, N. Y.
Kendall & Eldred R. R. (*See Buf., N. Y. & Phil.*)
Kent Northern Ry. 4-8½ g. 27 m. 2 lo. 16 cars.
J. C. Brown, *Gen. Man*.....Richibucto, N. B.
Kentucky Central R. R. 4-9 g. 184 m. 22 lo. 640 cars.
G. W. Bender, *Supt*..........Covington, Ky.
W. T. Smith, *M. of Mach*.......Covington, Ky.
M. C. B........Covington, Ky.
Kentucky & South Atlantic Ry. 3 g. 23 m. 3 lo. 52 c.
Geo. B. Harper, *Supt. & P. A*..Mt. Sterling, Ky
S. P. Hatfield, *M. M*..........Mt. Sterling, Ky.
Keokuk & Des Moines R.R. (*See Chi., R. I. & Pac.*)
Kinzua R. R. (*See Buf., N. Y. & Phil.*)
Kingston & Pembroke Ry. 4-8½ g. 90 m. 9 lo. 214 c.
B. W. Folger, *Supt*..........Kingston, Ont.
J. H. Taylor, *Pur. Agt*..........Kingston, Ont.
J. H. Taylor, *M. M*..........Kingston, Ont.
Knox & Lincoln R. R. 4-8½ g. 49 m. 5 lo. 103 cars.
C. H. Coombs, *Supt*..........Bath, Me.
Wm. A. Field, *M. M*..........Bath, Me.
C. L. Turner, *M. C. B*..........Bath, Me.
Knoxville & Augusta R. R. 5 g. 16 m. 2 lo. 34 cars.
R. N. Hood, *Gen. Man. & P. Agt*. Knoxville, Tenn
J. M. Hood, *Supt*..........Knoxville, Tenn.

L

Lackawanna & Pittsburgh R. R. 3 g. 97 m.
Geo. W. Chapman, *Rec*........Angelica, N. Y.
Lake Champlain & Moriah R.R. 4-8½ g. 8 m. 8 lo. 222c.
E. B. Hedding, *Supt*. ..Port Henry, N. Y.
Lake Erie & Western Ry. 4-8½ g. 388 m. 53 lo. 1,701 c.
J. H. Cheney, *Gen. Man*..... Bloomington, Ill.
D. S. Hill, *Gen. Supt*.......Bloomington, Ill.
T. H. Perry, *Pur. Agt*.......Bloomington, Ill.
H. L. Cooper, *Supt. of Equipment*....Lima, O.
Lake George & Muskegon River R. R.
4-8½ g. 20 m. 4 lo. 79 cars.
W. S. Gerrish, *Gen. Man*... Muskegon, Mich.
Lake Shore & Michigan So'n Ry.
4-8½ g. 1,340 m. 547 lo. 17,115 cars.
John Newell, *Gen. Man*..........Cleveland, O.
P. P. Wright, *Gen. Supt*.........Cleveland, O.
L. G. Higgins, *Pur. Agt*..........Cleveland, O.
G. W. Stevens, *Supt. M. P*........Cleveland, O.
John Kirby, *Gen. M. C. B*........Cleveland, O.
East'n Div.: C. B. Couch, *Supt*.....Cleveland, O.
J. S. Graham, *M. M*..........Buffalo, N. Y.
A. C. Robson, *M. C. B*..........Buffalo, N. Y.
L. O. Gassett, *M. M*..........Cleveland, O.
J. Withycombe, *M. C. B*.......Cleveland, O.
Frank. Div.: G. H. McIntire, *Supt*. Youngstown, O.
Toledo Div.: Thos. Flesher, Jr., *Supt*. Cleveland, O.
J. M. Sanborn, *M. M*..........Norwalk, O.
W. O. Smith, *M. C. B*..........Norwalk, O.
Mich. Divs.: J. E. Curtis, *Supt*.........Toledo, O.
Det. Brs.: T. J. Charlesworth, *Supt*. Detroit, Mich.
Lansing, Ypsilanti & Ft. Wayne Branches.
W. H. Caniff, *Supt*..........Hillsdale, Mich.
Western Div.: A. G. Amsden, *Supt*...Chicago, Ill.
W. L. Gilmore, *M. M*..........Elkhart, Ind.
Frank O. Bray, *M. C. B*.........Adrian, Mich.
Gr. Rap. Br.: M. E. Wattles, *Supt*. Kalamazoo, Mich.
Lake Tahoe R. R. 3 g. 10 m. 3 lo. 49 cars.
D. L. Bliss, *Gen. Man*.........Carson, Nev.
John T. Rogers, *Gen. Supt*......Carson, Nev.
Geo. R. Lindsay, *M. M*..........Carson, Nev.
Leavenworth, Topeka & So. W'n Ry. (*See A. T. & S. F.*)
Lebanon Springs R. R. 4-8½ g. 58 m. 5 lo. 44 c.
W. C. Alstyne, *Gen. Man*.......Albany, N. Y.
W. H. Hawkins, *Pur. Agt*.......Albany, N. Y.
Geo. Tefft, *M. M*..........Chatham, N. Y.
Lehigh Valley R. R. 4-8½ g. 495 m. 392 lo. 36,998 c.
H. S. Goodwin, *Gen. Supt*.......Bethlehem, Pa.
W. C. Alderson, *Pur. Agt*.....Philadelphia, Pa.
John I. Kinsey, *M. M*..........So. Easton, Pa.
John S. Lentz, *M. C. B*..........Packerton, Pa.
N. J. Div.: Jas. Donnelly, *Supt*. Perth Amboy, N. J.
Coal Rds.: J. I. Blakeslee, *Supt*. Mauch Chunk, Pa.
D. Clark, *M. M*..........Hazleton, Pa.
John Campbell, *M. M*..........Delano, Pa.
B. M. Div.: A. G. Brodhead, *S*..Mauch Chunk, Pa.
P. Hofecker, *M. M*..........Weatherly, Pa.
Wy. Div.: A. Mitchell, *S. & M. M*. Wilkesbarre, Pa.
Pa. & N. Y.; and Geneva, Ithaca & Sayre R. Rs.
Wm. Stevenson, *Gen. Supt*.........Sayre, Pa.
J. N. Weaver, *M. M*..........Sayre, Pa.
Lehigh & Hudson River Ry. 4-8½ g. 63 m. 8 lo. 350 c.
Grinnell Burt, *Gen Man*........Warwick, N. Y.
N. L. Furman, *Supt*..........Warwick, N. Y.
John Sayre, *Pur. Agt*..........Warwick, N. Y.
N. L. Furman, *Supt*..........Warwick, N. Y.
S. Mills, *M. M*..........Warwick, N. Y.
Lehigh & Lackawanna and Lehigh & Susquehanna R. Rs. (*See Phil. & Read.: N. J. Cen. Div.*)
Levis & Kennebec R. R. (*See Quebec Cen.*)
Litchfield, Carrollton & Western R. R. 4-8½ g. 22 m.
H. S. Carroll, *Prest. & G. Man*..Carrollton, Ill.
Ligonier Valley R. R. 4-9 g. 11 m. 2 lo. 22 cars.
Thos. A. Mellon, *Gen. Manager*.. Pittsburg, Pa.
Geo. Senft, *Supt. & P. Agt*.......Latrobe, Pa.
Little Miami R. R. (*See Penna. Co.'s Rds.; (8) Div.*)
Little Rock, Miss. River & Texas Ry.
4-8½ g. 170 m. 12 lo. 299 cars.
H. Wood, *Gen Man*..........Little Rock, Ark.
F. A. Lister, *Gen. Supt*........Little Rock, Ark.
F. Hufsmith, *M. M. & C. B*. Arkansas City, Ark.
Little Rock & Fort Smith. 4-8½ g. 170 m. 13 lo. 360 c
Hy. Wood, *Gen. Man*.........Little Rock, Ark
F. A. Lister, *Gen. Supt*........Little Rock, Ark.
F. Hufsmith, *M. M. & M. C. B*.....Argenta, Ark
Little Saw Mill Run R R 3 & 4-8½ g. 8 m 4 lo. 327 c.
T. Hartley, *Gen. Man*.........Banksville, Pa.
Long Island R. R. 4-8½ g. 352 m. 92 lo. 953 cars.
I. D. Barton, *Gen. Supt*..Long Island City, N. Y
Benj. Norton, *Pur. Agt*..Long Island City, N. Y.
C. A. Thompson, *M. M*. Long Island City, N. Y.
Longview & Sabine Valley R. R (*See Gal. Sab. & St. L.*)
Louisiana W'n R. R. (*See Cen. Pac.; G., H. & S. A. Div.*)
Louisville, Cin. & Lexington R. R. (*See Louis. & N.*)
Louis., Evans. & St. L. Ry. 4-8½ g. 254 m. 24 lo. 1,032c
Geo. T. Evans, *Gen. Man*.......Louisville, Ky.
C. F. Dalton, *Gen. Supt*........Louisville, Ky.
F. P. Boatman, *M. M*..........Evansville, Ind.
Louisville, New Albany & Chicago Ry.
4-8½ g. 470 miles 56 lo. 3,700 cars.
John B. Carson, *Gen. Supt*.........Chicago, Ill.
T. L. Dunn, *Gen. Supt*..........Chicago, Ill.
H. O. Nourse, *Pur. Agt*..........Chicago, Ill.
Josiah Bettis, *M. M. & C. B*...New Albany, Ind.
C. F. Bent, *Supt. Trans*......Lafayette, Ind.
Louisville, New Orleans & Tex. Ry. 450 m. In progress.
Jas. M. Edwards, *Gen. Man*.. .Memphis, Tenn.
E. D. Anderson, *M. M*..........Memphis, Tenn.
John Bradley, *Div. Supt*......New Orleans, La.
No. Div.: C. J. Birdsong..........Memphis, Tenn.
Louisville & Nashville R. R.
5 g. 2,186 m. 380 lo. 12,197 cars.
Gen. Man........Louisville, Ky.
W. P. Harris, *Supt*..........Louisville, Ky.
P. P. Huston, *Pur. Agt*..........Louisville, Ky.
Reuben Wells, *Supt. Mach*.....Louisville, Ky.
Louisv., Cin. & Lex. Divs.:
J. G. Metcalf, *Supt. Trans*.....Louisville, Ky.
P. Leeds, *M. M*..........Louisville, Ky.
J. W. Luttrell, *M. M*..........Louisville, Ky.
J. G. Clifford, *M. M.* (2d & C. Div.). Bowling Grn. Ky.
Henderson Div.: J. Geddes, *Supt*. Henderson, Ky.
W. P. Pike, *M. M*..........Nashville, Tenn.
Nash. & D. Div.: J. Geddes, *Supt*. Nashville, Tenn.
S. & N. A. Div.: *Supt*...Birmingham, Ala.
C. W. White, *M. M*..........Birmingham, Ala.
Mob. & M.; N. Div. Pens. & Sel.; Sl. & Mont. R. Rs.:
M. S. Belknap, *Supt*..........Montgomery, Ala.
J. N. Hall, *M. M.* (Mont. Shops). Montgomery, Ala.
N. O. Div.: O. M. Dunn, *Supt*....New Orleans, La.
Wm. Adair, *M. M*..........Mobile, Ala.
Memp. Div.: W. Colcamp, *Supt*. Memphis, Tenn.
J. V. Slusser, *M. M*..........Memphis, Tenn.
St. L. Div.: C. O. Parker, *Supt*. Montgomery, Ala.
Thos. Walsh, *M. M*..........Mt. Vernon, Ill.
Pensacola and So. Div. Pens. & Selma Rds.:
E. O. Saltmarsh, *Supt*..........Pensacola, Fla.
W. D. Robb, *M. M*..........Pensacola, Fla.
Louisville & Wadley R. R. 5 g. 10 m. 1 lo. 5 c.
J. H. Wilkins, *Supt. & Pur. Agt*. Louisville, Ga.

M

Macon & Brunswick R. R.
(*See E. Tenn., Vir. & Ga.; At. & Ga. Divs.*)
Maine Central R. R. 4-8½ g. 465 m. 59 lo. 1,335 c
Payson Tucker, *Gen. Man*........Portland, Me.
Ira K. Russell, *M. M*..........Waterville, Me.
C. H. Kenison, *M. C. B*..........Augusta, Me.
Eastern Maine. 3 g. 19 m. 2 lo. 40 c.
L. L. Lincoln, *Supt*..........Portland, Me.
Manchester & Keene R.R. 4-8½ g. 30 m. (*See Concord.*)
Manchester & Lawrence R. R. (*See Concord.*)
Manchester & North Weare R. R. (*See Concord.*)
Manhattan Ry. 4-8½ g. 32 m. 228 lo. 652 pass. c.
Frank K. Hain, *Gen. Man*.....New York, N. Y.
W. T. Goundie, *Supt. Trans*. .New York, N. Y.
T. W. Peeples, *M. M*.......New York, N. Y.
H. A. Webster, *M. C. B*.......New York, N. Y.
Manhattan, Alma & Burlingame Ry. (*See A., T. & S. F.*)
Manitoba Southwestern Colonization Ry.
4-8½ g. 52 m. 3 lo. 125 cars.
J. M. Eagan, *Gen. Supt*.........Winnipeg, Man.
Chas. Newell, *M. M*..........Winnipeg, Man.
Marietta & Cincinnati R. R. (*See Cin. Wash. & Balt.*)
Marietta & North Georgia R. R. 3 g. 60 m. 3 lo. 7 c.
J. B. Glover, *Supt. & P. Agt*.... Marietta, Ga.
E. A. Withers, *M. M*..........Marietta, Ga.
Marquette, Houghton & Ontonagon R. R.
4-8½ g. 100 m. 42 lo. 2,530 cars.
John Hornby, *Gen. Man*.......Marquette, Mich.
M. B. McGee, *Pur. Agt*.......Marquette, Mich.
W. A. Thompson, *M. M*.......Marquette, Mich.
H. D. Lyons, *M. C. B*. ......Marquette, Mich.
Maryland Central R. R. 3 g. 27 m. 4 lo. 56 cars.
S. G. Boyd, *Supt*..........Baltimore, Md.
Marquette & Western.
D. McCool, *Gen. Supt*........Marquette, Mich.
W. J. Tench, *Pur. Agt*.......Marquette, Mich.
Massachusetts Central R. R. 4-8½ g. 48 m. 5 l. 81 c.
E. G. Allen, *Supt. & Pur. Agt*....Boston, Mass.
E. A. Walker, *M. M*.......So. Sudbury, Mass.
McComb, Deshler & Toledo R. R.
(*See Cin., Ham. & Day.; D. & M. Div.*)
Meadville Ry. (*See Penna. Co.'s Rds.; (2) Div.*)
Memphis & Charleston R. R. (*See E. Tenn. Va. & Ga.*)
Memphis & Lit. Rock R. R. 5 g. 135 m. 14 lo. 299 c.
R. Fink, *G. Man. & P. A*......Little Rock, Ark.
H. G. Fleming, *Supt*..........Memphis, Tenn.
Thos. Rennell, *M. M*..........Argenta, Ark.
T. Rennell, *M. C. B*..........Argenta, Ark.
Mexican Ry. 4-8½ g. 293 m. 42 lo. 616 cars.
E. W. Jackson, *Gen. Man*.......Mexico, Mex.
Mexican Central Ry. 4-8½ g. 680 m. 73 lo. 818 c.
Theo. Nickerson, *Pur. Agt*......Boston, Mass.
D. B. Robinson, *Gen. Man*.......City of Mexico.
D. MacKenzie, *Gen. Supt*.......City of Mexico.
J. H. O'Brien, *M. M*..........City of Mexico.
G. T. Jarvis, *Div. Supt*.........City of Mexico.
A. Smith, *Div. Supt*..........Silao, Mex.
Wm. Davis, *Div. Supt*..........Jimulco, Mex.
E. E. Comfort, *Div. Supt*..Paso del Norte, Mex.
F. W. Johnstone, *Supt. R. S*....City of Mexico.
E. P. Simpson, *M. M*..........City of Mexico.
A. Hendee, *M. M*..........Calera, Mex.
C. F. Stewart, *M. M*..........Silao, Mex.
W. L. Wallace, *M. M*..........Jimulco, Mex.
J. G. McCuen, *M. M*..........Chihuahua, Mex.
San Blas Div.: C. E. Payne, *Supt*..San Blas, Mex.
1st Div.: G. T. Jarvis, *Supt*.... City of Mexico.
2d Div.: J. H. Smith, *Supt*.......Silas, Mex.
3d Div.: Wm. Davis, *Supt*.......Jimulco, Mex.
4th Div.: R. E. Comfort, *Supt*. Paso Del Norte, Mex.
Mexican National Ry. 3 g. 766 m. 50 lo. 1,283 c.
Texas Mexican Ry. 3 g. 171 m. 10 lo. 212 c.
R. C. Peebles, *Supt*..........Mexico, Mex.
W. F. Baldwin, *Asst. Supt*.......Laredo, Tex.
Galv. Div. T. M. Ry.: M. Quin, *Supt*. Galveston, Tex.
No. Div. Mex. Nat. Ry. & So. Div. Tex.-Mex. Ry.
C. A. Merriam, *Supt*..........Laredo, Texas.
Tho. Milan, *M. M*.........Corpus Christi, Tex.
So. Div. M. N. Ry.: W. E. Lewis, *Supt*. Mexico, Mex.
J. M. Winslow, *M. M*..........Mexico, Mex.
Mat. Div.: F. E. Butterfield, *Supt*. Matamoras, Mex
Mexican, Oriental, Inter-Oceanic & International R. R. 1,400 miles. In progress.
G. M. Dodge, *Pres*. 195 B'way, New York, N. Y.
Michigan Cen. R. R. 4-8½ g. 1,485 m. 357 lo. 11,284 c.
H. B. Ledyard, *Pres. & Gen. Man*. Detroit, Mich.
E. C. Brown, *Gen. Supt*.........Detroit, Mich.
Robert Miller, *Asst. Gen. Supt*...Detroit, Mich.
Allan Bourn, *Pur. Agt*..........Detroit, Mich.
S. H. Edgerly, *Gen. M. M*......Jackson, Mich.
(1) Lines West of Detroit River:
E. C. Brown, *Gen. Supt*.........Detroit, Mich.
East. Div.: D. S. Sutherland, *Supt*. Detroit, Mich.
Bay City, Saginaw & Mackinaw Divisions.:
W. A. Vaughan, *Supt*.........Bay City, Mich.
C. E. Smart, *M. M*..........Bay City, Mich.
Main Line: Gr. Rap.; So. Bend; and So. H'v. Divs.:
C. B. Bush, *Supt*..........Jackson, Mich.
W'n Divs.: R. H. L'Hommedieu, *Supt*. Chicago, Ill.
(2) Lines East of Detroit River:
Wm. H. Perry, *Agt*..........Buffalo, N. Y.
J. E. Morford, *Supt*,..........St. Thomas, Ont.
A. Bull, *M. M*..........St. Thomas, Ont.
Rob't Potts, *M. C. B*.. ...St. Thomas, Ont.
Michigan & Ohio.
Luther Allen, *Supt*..........Toledo, O.
W. L. Webb, *Pur. Agt*..........Toledo, O.
D. J. Durrell, *M. M*..........Marshall, Mich.
Middleburg & Schoharie; and Schoharie Valley R. Rs. 4-8½ g. 11 m. 2 lo. 6 cars.
P. S. Danforth, *Gen. Supt*... Middleburg, N. Y.
Midland of Canada. (*See Grand Trunk.*)
Midland No. Carolina Ry. 5 g. 95 m. 9 lo. 82 cars.
Atlantic & North Carolina Ry. 22 m.
John D. Whitford, *Gen. Man*..Newbern, N. C.
J. A. Bryan, *Supt*..........Newbern, N. C.
D. J. Sprague, *Pur. Agt*.....New York, N. Y.
B. Manly, *Supt. of Mach*.......Newbern, N. C.
Milford & Woonsocket.
W. W. Jencks, *Supt*..........Milford, Mass.
Milton & Sutherlin. (*Oper. by Rich. & Danville.*)
Milwaukee, Lake Shore & Western Ry.
4-8½ g. 370 m. 45 lo. 1,536 cars.
H. G. H. Reed, *Gen. Man. & P. Agt*. Milwaukee, Wis
J. Donahue, *Supt*..........Milwaukee, Wis
David B. Curtis, *Asst. Supt*.. Oshkosh, Wis
John Hickey, *M. M*..........Ledyard, Wis.
Milwaukee & Northern and Wisconsin & Michigan R. Rds. 4-8½ g. 228 m. 24 l. 703 cars
C. F. Dutton, *Gen. Supt*.......Milwaukee, Wis.
N. S. Kimball, *M. M*..........Ft. Howard, Wis.
Mineral Range R. R. 3 g. 13 m. 4 lo. 43 cars
Chas. E. Holland, *Pr. & Supt*...Hancock, Mich.
W. H. Carr, *Pur. Agt*.........Hancock, Mich.
T. J. Shellhorn, *M. M. & C. B*..Hancock, Mich.
Minneapolis, Lyndale & Minnetonka Ry.
3 g. 20 miles 4 motors 1 lo. 35 cars.
William McCrory, *Man*.....Minneapolis, Minn.
T. W. Heintzelman, *M. M*.. Minneapolis, Minn.
Missisquoi R. R. 4-8 g. 28 m.
W. C. Smith, *Man*..........St. Albans, Vt.
Mississippi, Terre Aux Boeufs & Lake R. R.
29 miles.
M. R. Spelman, *Supt*.........New Orleans, La.
Mississippi & Tenn. R. R. 4-8½ g. 101 m. 12 lo. 194 c,
M. Burke, *Gen. Supt*.........Memphis, Tenn.
J. C. Ramsey, *M. M*..........Memphis, Tenn.
S. J. Bolton, *M. C. B*..........Memphis, Tenn.
Missouri, Kansas & Texas Ry. (*See Mo. Pac.; (2) Div.*)
Missouri Pacific Ry. (Leased and operated lines.)
4-8½ g. 6,029 m. 697 lo. 19,748 cars.
H. M. Hoxie, *3d V. Pres*.........St. Louis, Mo.
R. B. Lyle, *Pur. Agt*..........St. Louis, Mo.
(1), (2) and (3) Divs.:
John Hewitt, *Supt. M. P. & M*. ..St. Louis, Mo.
John Hodge, *Supt. Car Dep*.......St. Louis, Mo.
Frank Howard, *Asst. Supt. C. D*...Marshall, Tex.
(4), (5) and (6) Divs.:
O. A. Haynes, *S. M. P. & M*....Marshall, Tex.
(1) Missouri Pacific Ry. 1,028 m. 155 lo. 4,218 cars.
A. M. Hagar, *Supt*..........Sedalia, Mo.
E. Taylor, *M. M*..........Sedalia, Mo.
W'n Div.: A. M. Hagar, *Supt*.......Sedalia, Mo.
(2) Mo., Kan. & Tex. Ry. 1,308 m. 140 lo. 4,248 cars.
S. Irvin, *Asst. Supt. Car Dep*...... Sedalia, Mo.
J. B. Vandyne, *Supt*..........Parsons, Kan.
J. W. Haines, *M. M*..........Parsons, Kan.
(3) Central Branch Un. Pac. R. R. 388 m. 30 lo. 599 c.
W. W. Fagan, *Supt*..........Atchison, Kan.
H. V. Faries, *M. M*..........Atchison, Kan.
J. W. Blackburn, *A. Supt. Car D*..Atchison, Kan.
(4) St. L., I. Mt. & So'n Ry. 905 m. 138 lo. 4,928 c.
Wm. Kerrigan, *Supt*..........St. Louis, Mo.
St. Louis Div.: W. H. Harris, *M. M*..De Soto, Mo.
Ark. Div.: *Supt*.......Little Rock, Ark.
R. M. Richardson, *M. M*.....Little Rock, Ark.
(5) Int. & G. No.: John Herrin, *Supt*..Palestine, Tex.
W. S. Morris, *M. M*..........Palestine, Tex.
(6) Tex. & Pac.: *Supt*.....Marshall, Tex.
E. N. O. & Tr. Cont. Divs.:
Geo. Dimick, *Supt*..........Marshall, Tex.
E. A. Haggerty, *M. M*..........Marshall, Tex.
E. R. Smith, *M. M. & M. C. B*..N. Orleans, La.
Rio Grande Div.:
L. L. Keller, *Supt*..........Big Springs, Tex.
J. K. Lape, *M. M*..........Big Springs, Tex.
Mobile & Ala. Grand Trunk R. R. 5 g. 59 m. 2 lo. 23 c.
Wm. H. Pratt, *Trustee*..........Mobile, Ala.
Mobile & Girard R. R. 5 g. 84 m. 7 lo. 112 cars
W. L. Clark, *Gen. Supt*..........Columbus, Ga.
J. C. Albrecht, *M. M*..........Columbus, Ga.
A. J. Nix, *M. C. B*..........Columbus, Ga.
Mobile & Montgomery Ry. (*See Louis. & Nash.*)
Mobile & Northwestern R. R. 3 g. 31 m. 2 lo. 16 c.
Thomas T. A. Lyon, *Pres*......Glendale, Miss.
Mobile & Ohio R. R. 5 g. 528 m. 75 lo. 1,353 cars.
G. Jordan, *V. Pr. & Gen. Man*.....Mobile, Ala.
F. Jordan, *Pur. Agt*..........Mobile, Ala.
M. T. Carson, *Gen. M. M*.........Whistler, Ala.
J. T. Booth, *M. C. B*..........Whistler, Ala.
So'n Div.: J. G. Motley, *Supt*....., Mobile, Ala.
L. J. Morris, *M. M*..........Macon, Miss.
No'n Div.: E. S. Hosford, *Supt*.. Jackson, Tenn.
H. C. Goode, *M. M*..........Jackson, Tenn.
Mobile & Spring Hill R. R. 5-2 g. 8 m. 1 lo. 16 cars.
F. Ingate, *Manager*..........Mobile, Ala.
Moline & Southeastern R. R. 3-6 g. 8 m. 2 lo. 26 c.
R. Battersly, *Gen. Man*.........Coal Valley, Ill.
Mont Alto R. R. 4-9 g. 21 m. 2 lo. 8 cars.
G. B. Wiestling, *Supt. & P. A*....Mont Alto, Pa.
Montgomery & Eufaula Ry. (*See Cen. of Ga.*)
Montgomery Southern Ry. 3 g. 20 m. 1 lo. 15 cars.
S. D. Hubbard, Jr., *Gen. Man*. Montgomery, Ala.
Montour R. R. 4-8½ g. 12 m. 2 lo. 130 cars.
C. R. Brown, *Supt. & Pur. Agt*...Imperial, Pa.
Henry Newman, *M. C. B*.......Imperial, Pa.
Montpelier & Wells Riv. R. R. 4-8½ g. 38 m. 3 lo. 86c.
W. A. Stowell, *Supt*..........Montpelier, Vt.
Montreal Portland & Boston Ry. (*See Passumpsic.*)
Montreal & Sorel Ry. 4-8½ g. 47 m. 3 lo. 35 c.
C. N. Armstrong, *G. M. & Pur. Agt*. Sorel, Que.
J. F. Armstrong, *Gen. Supt*.......Sorel, Que.
G. W. Pangborn, *M. M*..........Sorel, Que.
Montrose Ry. 3 g. 28 m. 3 lo. 24 cars.
T. G. Walter, *Gen. Supt*... Tunkhannock, Pa.
Morgan's Louis. & Tex. R. R. 4-8½ g. 242 m. 46 l. 1,339 c.
J. Kruttschnitt, *Supt*.........New Orleans, La.
C. Trumpy, *Pur. Agt*.......New Orleans, La.
J. D. Connell, *M. M*..........Algiers, La.
Jno. Hildebrand, *M. C. B*.........Algiers, La.
Mount Washington R. R. 5-3 g. 3 m. 6 lo. 6 cars.
Walter Aiken, *Gen. Man*.......Franklin, N. H.
Muncy Creek Ry. (*See Wmspt. & No. Br.*)

N

Nantasket Beach R. R. 4-8½ g. 6 m. 5 lo. 25 c.
George L. Keyes, *Gen. Supt*......Boston, Mass.
Naugatuck R. R. 3 g. 4 m. 17 lo. 547 cars.
Geo. W. Beach, *Supt*..........Waterbury, Conn.
H. A. Bishop, *Pur. Agt*.........Bridgeport, Conn.
H'y D. Beach, *Supt. R. S*....Bridgeport, Conn.
Napanee, Tamworth & Quebec Ry. In progress.
Ed. W. Rathbun, *Man. Dir*....Deseronto, Ont
R. C. Carter, *Supt*..........Deseronto, Ont.
Narragansett Pier R. R. 4-8½ g. 8 m. 2 lo. 11 c.
G. T. Lanphear, *Supt. & Pur. Agt*. Peacedale, R. I.
Nashua & Rochester R. R. (*See Wor. & Nash.*)
Nashville, Chattanooga & St. Louis Ry.
5 g. 539 miles 87 lo. 1,979 cars.
J. W. Thomas, *G. Man. & P. Agt*. Nashville, Tenn.
M. J. C. Wrenne, *Supt*.........Nashville, Tenn.
James Cullen, *M. M. & C. B*...Nashville, Tenn.
Nashville & Florence R. R. 5 g. 20 m.
J. T. Craik, *Supt*..........Columbia, Tenn.
Natchez, Jackson & Col. R. R. 3-6 g. 100 m. 7 lo. 92 c.
E. D. Frost, *Gen. Supt*..........Natchez, Miss.
National Car Company. 4,000 freight cars.
L. Millis, *Pres*..........Boston, Mass.
F. Stewart Stranahan, *Sec. & Tr*. St. Albans, Vt.
John B. Fletcher, *Supt*.......St. Albans, Vt.
Nebraska, Topeka, Iola & Memphis R. R. 4-8½ g. 16 m.
H. M. Clarke, *Gen. Man*..........Girard, Kan.
C. H. Malin, *Gen. Supt*..........Girard, Kan.
Nevada Central R. R. (*See Union Pac.; (7) Div.*)
Nevada County N. G. R. R. 3 g. 23 m. 3 lo. 46 cars.
John F. Kidder, *Supt*.........Grass Valley, Cal.
Jas. McCormick, *M. M. & C. B*. Grass Valley, Cal.
Nevada & Oregon R. R. 3 g. 30 m. 25 cars.
D. W. Balch, *Supt*..........Reno, Nev.
New Brunswick Ry. 4-8½ g. 419 m. 20 lo. 357 cars.
E. R. Burpee, *Gen. Man*.......Woodstock, N. B.
Jesse Mathews, *M. M*..........Gibson, N. B.
T. N. Burpee, *M. C. B*....McAdam Junc., N. B.
J. J. Seely, *Pur. Agt*..........Woodstock, N. B.
Thos. Armstrong, *M. M*.... St. Andrew's, N. B.
G. Houlton, *M. C. B*.......St. Andrew's, N. B.
New Brunswick & Can. Ry. (*See New Brun.*)
Newburg, Dutchess & Conn. R. R. 4-8½ g. 58 m.
C. L. Kimball, *Supt. & P. Agt*. Matteawan, N. Y.
New Castle R. R. 3-6 g. 5 m. 2 lo. 76 cars.
Geo. Pearson, *Gen. Man*.......New Castle, Pa.
New Castle & Beaver Valley R. R. (*See Penna. Co.*)
New Haven & Derby R. R. 4-8½ g. 13 m. 4 lo. 70 c.
E. S. Quintard, *Supt*.........New Haven, Conn.
J. M. Whitlock, *M. M. & C. B*. New Haven, Conn.
New Haven & No'mpton. 4-8½ g. 170 m. 27 lo. 598 c.
S. B. Opdyke, Jr., *Supt*.......New Haven, Ct.
R. G. Curtis, *Pur. Agt*.......New Haven, Ct.
Henry Fox, *M. M*..........New Haven, Ct.
John Sweeny, *For Car. Shps*...New Haven, Ct.
New Jersey & New York Ry. 4-8½ g. 37 m. 6 lo. 40 c.
J. D. Hasbrouck, *Gen. Man*. Jersey City, N. J.
J. S. Drake, *Supt. & M. M*.......Hillsdale, N. J.
L. B. Van Wagonen, *M. C. B*.....Hillsdale, N. J.
N. J. Southern Ry. (*See Phil. & Read.; N. J. So. Div.*)
New London Northern R. R. (*See Central Ver.*)
New Orleans, B. Rouge, Vicks. & Memphis.
Jas. M. Edwards, *Gen. Man*..New Orleans, La.
John Bradley, *Supt*.........New Orleans, La.
New Orleans Pacific Ry. (*See Mo. Pac.; (6) Div.*)
New Orleans & Carrollton R. R.
4-8½ g. 15 m. 12 lo. 79 cars.
C. V. Haile, *Supt*..........New Orleans, La.
John Dahmer, *M. M*..........New Orleans, La.
Jas. Thorn, *M. C. B*..........New Orleans, La.
New Orleans & Mobile R. R. (*See Louis. & Nash.*)
N. O. & Northeastern R. R. (*See Cin., N. O. & Tex. Pac.*)
New Orleans & Selma R. R. 5 g. 21 m. 1 lo. 8 cars.
L. B. Schofield, Supt..........Selma, Ala.
Newport & Wickford R. R. 4-8½ g. 22 m.
Theo. Warren, *Supt*..........Newport, R. I.
N. Y. Central & Hudson River R.R.
4-8½ g. 983 m. 676 lo. 25,161 cars.
J. M. Toucey, *Gen. Supt*...... New York, N. Y.
Chas. Reed, *Pur. Agt*........ New York, N. Y.
Wm. Buchanan, *Supt. M. P*... New York, N. Y.
N. Y. & Har. Div.: C. M. Bissell, *Supt*. do.
P. McQ. Gibson, *M. M*.......New York, N. Y.
Hud. Riv. Div.: C. M. Bissell, *Supt*. N. York, N. Y.
W. H. Wolfrath, *M. C. B*....New York, N. Y.
E'n Div.: Zenas C. Priest, *Supt*.......Utica, N. Y.
John Ortton, *M. M*........West Albany, N. Y.
L. Packard, *M. C. B*.......West Albany, N. Y.
W'n Div.: Geo. H. Burrows, *Supt*. Rochester, N. Y.
S. L. White, *M. M*..........Syracuse, N. Y.
Amos Gould, *M. M*.........E. Buffalo, N. Y.
E. Chamberlain, *M. C. B*.. E. Buffalo, N. Y.
Peter Smith, *M. C. B*..... E. Rochester, N. Y.
Rd. Donaby, *M. C. B*....Niagara Falls, N. Y.
N. Y. Chic. & St. L. Ry. 4-8½ g. 513 m. 115 lo. 4,838 c.
Lewis Williams, *Gen. Man*..... Cleveland, O.
Jno. Mackenzie, *Supt. M. P*. .....Cleveland, O.
Eas'tn Div.: G. H. Kimball, *Supt*.. .Cleveland, O.
E. A. Miller, *M. M*..........Conneaut, O.
West'n Div.: A. H. Evans, *Supt*.......Chicago, Ill.
Jas. Eckford, *M. M*..........Bellevue, O.
New York City & Northern. 4-8½ g. 54 m. 17 lo. 368 c.
Frank S. Gannon, *Gen. Supt*. High Bridge, N. Y.
Tho. Millen, *M. M*.........High Bridge, N. Y.
New York, Lackawanna & W'n Ry. (*See Del. L. & W.*)
New York, Lake Erie & Western R. R.
E. S. Bowen, *V. Pr*..........New York, N. Y.
(1) N. Y., L. E. & W. Div.: 4-8½ g. 1,073 m. 576 lo. 30,553c.
B. Thomas, *Gen. Supt*........Jersey City, N. J.
J. A. Hardenburgh, *Pur. Agt*. New York, N. Y.
F. M. Wilder, *Supt. M. P. & M*...Susqueh'a, Pa.
E'n Div.: E. O. Hill, *Supt*.......Jersey City, N. J.
J. H. Vreeland, *M. M*...... Jersey City, N. J.
J. N. Mileham, *M. C. B*.....Jersey City, N. J.
Del. Div.: E. Van Etten, *Supt*.. Port Jervis, N. Y.
J. Van Vechten, *M. M. & C. B*. Pt. Jervis, N. Y.
Susq. Div.: J. Jolls, *Supt*..........Elmira, N. Y.
V. Blackburn, *M. M*.......Susquehanna, Pa.
D. B. Goodell, *M. C. B*..........Elmira, N. Y.
Buf. & R. Divs.: W. J. Murphy, *Supt*.; and
G. B. Ross, *M. M*..........Buffalo, N. Y
M. Wilder, *M. C. B*..........Buffalo, N. Y.
B. & S.-W. Div.: C. A. Brunn, *Supt* do.
W'n Div.: W. B. Coffin, *Supt*.. Hornellsville, N. Y.
J. H. Hawthorne, *M. M*...Hornellsville, N. Y.
N. Y. & Greenwood L. Ry. 4-8½ g. 44 m. 8 lo. 53 c.
Stephen Smith, *Supt*.........Jersey City, N. J.
F. A. Stinard, *M. M*..........Pompton, N. J.
(2) N. Y., Pa. & O. Div.: 4-8½ g. 565 m. 221 lo. 7,794 c.
S. M. Felton, Jr., *Gen. Man*....Cleveland, Ohio
J. M. Ferris, Jr., *Gen. Supt*.. Cleveland, Ohio.
J. H. Holway, *Pur. Agt*.......Cleveland, Ohio.
Wm. Fuller, *Gen. M. M. & C. B*...Cleveland, O.
S. V. Smith, *Asst. Gen. M. C. B*. ...Kent, Ohio.
E'n Div.: A. L. Dunbar, *Supt*.......Meadville, Pa.
J. A. Cooper, *M. M*..........Meadville, Pa.
D. S. Dockstader, *M. C. Rep*...Meadville, Pa
W'n Div.: T. A. Phillips, *Supt*.........Galion, O.
Wm Hill, *M. M*..........Galion, O.
J. W. Holmes, *For. Car Rep*.......Galion, O.
Geo. Wilson, *For. Car Rep*.... Dayton, Ohio.
Maho'g Div.: N. F. Wood, *Supt*......Cleveland, O.
N. Wright, *M. M*..........Cleveland, O.
C. N. Thorp, *M. C. Rep*.........Cleveland, O.
New York, New Haven & Hartford R. R.
4-8½ g. 203 m. 123 lo. 2,768 cars.
E. M. Reed, *V. P. & Gen. Man*..New Haven, Ct.
R. N. Dowd, *Pur. Agt*.........New Haven, Ct.
N. Y. & N. H. Div.: W. H. Stevenson, *Supt*...N. Y.
Shore Line and Air Line Divs.:
O. M. Shepard, *Supt*.........N. Haven, Ct.
John Henny, Jr., *Supt. M. P*..New Haven, Ct.
Jas. Denver, *M. C. B*.........New Haven, Ct.
Hart. Div.: C. S. Davidson, *Supt*....Hartford, Ct.
Supt. M. P. & M. C. B.... do.
N. Y., Ontario & Western Ry. (*See N. Y., W. Sh. & Buf.*)
N. Y., Pittsb'h & Chicago. 4-8½ g. 20 m. 2 lo. 32 c.
Geo. W. Dixon, *Supt*.........New Galilee, Pa.
H. T. Hanna, *Pur. Agt*.........Pittsburgh, Pa.
N. Y., Pennsylvania & Ohio R. R. (*See N. Y., L. E. & W.*)
New York, Philadelphia & Norfolk R. R.
4-8½ g. 10 m. 1 lo. 4 cars.
Jas. McConkey, *Supt*.......Princess Ann, Md.
New York, Providence & Boston R. R.
4-8½ g. 83 m. 29 lo. 430 cars.
J. B. Gardner, *Supt*..........Providence, R. I.
Giles F. Ward, *Pur. Agt*......Stonington, Conn.
M. M. & C. B.....Providence, R. I.
N. Y., Susqueh'na & W'n. 4-9 g. 147 m. 33 lo. 1,469 c.
F. A. Potts, *Gen. Man*..........New York, N. Y.
C. D. McKelvey, *Asst. Supt*. Jersey City, N. J.
C. T. Demarest, *Pur. Agt*.....New York, N. Y.
W. C. Ennis, *M. M. & C. B*...Wortendyke, N. J.
New York, Texas & Mexican Ry.
4-8½ g. 92 m. 6 lo. 95 cars.
Allen McCoy, *Gen. Man*..........Victoria, Tex.
J. G. Conlon, *M. M*..........Victoria, Tex.
New York, West Shore & Buffalo.
4-8½ g. 850 m. 98 lo. 2,907 c.
J. D. Layng, *Gen. Man*.........New York, N. Y.
C. D. Gorham, *Gen. Supt*.......Weehawken, N. J.
P. S. Bemis, *Pur. Agt*..........New York, N. Y.
R. H. Soule, *Supt. M. P*........Frankfort, N. Y.
H. R. Div.: C. W. Bradley, *Supt*., Weehawken, N. J.
Harry Linn, *M. M*..........New Durham, N. J.
Moh'k Div.: H. W. Gardiner, *Supt*. Syracuse, N. Y.
Buff. Div.: D. B. McCoy, *Supt*.....Buffalo, N. Y.
New York, Ontario & Western.
J. E. Childs, *Gen. Supt*........New York, N. Y.
N. Y. Woodhaven & Rockaway R. R. (*See Long Is.*)
N. Y. & Greenwood Lake Ry. (*See N. Y., L. E. & W.*)
N. Y. & Manhattan Beach Ry. (*See Long Island.*)
New York & Long Branch R. R. (*See Phil. & Read.*)
New York & New England R. R.
4-8½ g. 473 m. 145 lo. 3,959 cars.
W. H. Turner, *Gen. Supt*.......Boston, Mass.
W. W. McKim, *Pur. Agt*..........Boston, Mass.
J. B. Henney, *Supt. M. P*........Boston, Mass.
Geo. E. Boyden, *M. M*.........Norwood, Mass.
Elias E. Pratt, *M. C. B*..........Norwood, Mass.
East Div.: E. G. Allen, *Supt*........Boston, Mass.
Nor. Div.: P. St. M. Andrews, *Supt*...Norwich, Ct.
M. M..........Norwich, Ct.
Prov. Div.: L. W. Palmer, *Supt*..Providence, R. I.
Hfd. Div.: E. Holbrook, *Supt*.......Hartford, Ct.
E. M. Humstone, *M. M*. ....Hartford, Ct.
West'n Div.: C. H. Platt, *Supt*.....Fishkill, N. Y.
Woons'kt Div.:
E. N. Tucker, *Supt*..........Needham, Mass.
New York & Sea Beach R R. 4-8½ g. 6 m. 4 lo. 20 c.
C. W. Douglass, *Supt*.........Bay Ridge, N. Y.
, *Supt*.........Bay Ridge, N. Y.
Newark, Somerset & Straitsville R. R. (*See B. & O.*)
Newburg, Dutchess & Conn. R. R. 4-8½ g. 59 miles.
C. L. Kimball, *Gen. Supt*.....Matteawan, N. Y.
W. G. Van Buskirk, *M. M. & C. B*., Dutchess Junction, N. Y
Newfoundland Ry. 3-6 g. 45 m. 7 lo. 41 c.
C. X. Hobbs, *Gen. Man*........St. John's N'f'd.
Norfolk Southern R. R. 4-8½ g. 74 m. 7 lo 182 c.
M. K. King, *Gen. Man. & Pur. Agt*. Norfolk, Va.
J. S. Whitworth, *M. M. & C. B*....Norfolk, Va.
Norfolk & Ocean View Narrow Gauge R. R.
3 g. 8 m. 2 lo. 9 cars.
W. H. Taylor, *Pres*..........Norfolk, Va.
Norfolk & Va. Beach R. R. 3 g. 18 m.
J. M. Dickey, *Gen. Man*.........Norfolk, Va.
Norfolk & Western R. R. (*See Shenandoah Val.*)
North-Eastern R. R. of Ga. 5 g. 72 m. 2 lo. 20 cars.
H. R. Bernard, *Supt*..........Athens, Ga.
North-Eastern R. R. (S. C.) (*See Wil. & Wel.*)
North Pacific Coast R. R. 3 g. 84 m. 12 lo. 320 cars.
David Nye, *Gen. Supt*..........San Rafael, Cal.
W. F. Russell, *Pur. Agt*....San Francisco, Cal.
E. L. Reese, *M. M*..........Saucelito, Cal.
North Shore Ry 4-8½ g. 209 m. 21 lo. 564 c.
W. Wainwright, *Gen. Man*.....Montreal, Can.
A. Davis, *Supt. & Pur. Agt*.....Quebec, Can
Northern (N. H.), and Concord & Claremont Rys.
4-8½ g. 173 m. 25 lo. 569 cars.
Geo. E. Todd, *Supt*..........Concord, N. H.
M. M. & C. B. & Pur. Agt.. do.
Northern (N. J.) R. R. (*See N. Y., L. E. & W'n.*)
Northern Central Ry. (*See Penna. R. R. (6) Div.*)
North'n Pacific R. R. 4-8½ g. 2,207 m. 391 lo. 9,897 c.
T. F. Oakes, *Gen. Man*.........St. Paul, Minn.
John H. Ames, *Gen. Pur. Agt*..St. Paul, Minn.
Geo. W. Cushing, *Supt. M. P., M. & R. S*. do.
J. C. Barber, *M. C. B*.........Brainerd, Minn.
(1) E'n Div.: J. T. Odell, *A. Gen. Man*. St. Paul, Minn.
H. J. Small, *A. S. Mach*.......Brainerd, Minn.
1st Gr. Div.: M. C. Kimberly, *Supt*. Brainerd, Minn.
M. C. B.....Brainerd, Minn.
2d Gr. Div.: J. M. Graham, *Supt*. Jamestown, Dak.
C. C. Quinn, *M. M*..........Fargo, Dak.
A. Bardsley, *M. M*..........Mandan, Dak.
F. Greene, *A. Supt*..........Mandan, Dak.
3d Gr. Div.: S. R. Ainslie, *Supt*.. Glendive, Mont.
S. L. Bean, *M. M*..........Glendive, Mont.
J. C. Munro, *M. M*..........Livingston, Mont.
(2) W'n Div.: J. M. Buckley, *Asst. Gen. Man*. New Tacoma, W. T.
H. D. Sanborn, *P. Agt*.........Portland, Ore.
W. T. Small, *A. S. Mach*.......Portland, Ore.
4th Gr. Div.: J. B. Cable, *Supt*...Missoula, Mont.
Jas. Walsh, *M. M*..........Missoula, Mont.
J. Evans, *M. M*..........Sprague, W. T.
5th Gr. Div.: Otis Sprague, *Supt*...Tacoma, W. T.
H. H. Warner, *M. M*.......Tacoma, W. T.
Northern & North-W'n Rys. 4-8½ g. 378 m. 50 lo. 1,195 c.
James Webster, *Supt*..........Toronto, Can.
W. C. Schreiber, *Pur. Agt*.......Toronto, Can.
P. Clarke, *M. M*..........Toronto, Can.
Nova Scotia Ry. 4-8½ g. 79 m. 9 lo. 268 c

C. A. Scott, *Gen. Man.* ... New Glasgow, N. S.
M. F. Punch, *M. M* .... New Glasgow, N. S.

O

Ogdensburg & Lake Champlain R. R.
4-8½ g. 122 m. 33 lo. 1,694 cars.
A. A. Gaddis, *Gen. Man* ...... Ogdensburg, N. Y.
E. B. Burnham, *Pur. Agt* ... Ogdensburg, N. Y.
Abr. Klohs, *S.. & M. M* .... Malone, N. Y.
J. N. Brown, *Master Builder*. Ogdensburg, N. Y.
Ohio Central R. R. 4-8½ g. 325 m. 46 lo. 4,760 cars.
John E. Martin, *Rec* ...... Toledo, O.
T. M. Peelar, *Supt* .... Bucyrus, O.
F. W. Stewart, *Pur. Agt* ...... Toledo, O.
J. B. Morgan, *M. M. & C. B* ...... Bucyrus, O.
Ohio River R. R. - 4-9 g. (in progress).
C. L. Williams, *Asst. Supt*. Parkersburg, W. Va.
Ohio Southern R. R. (*See Ind., Bloom. & W'n.*)
Ohio & Mississippi Ry. 4-9 g. 616 m. 113 lo. 2,501 cars.
W. W. Peabody, *Pres. & Gen. Man*. Cincinnati, O.
G. E. Atwood, *Pur. Agt* .... Cincinnati, O.
J. H. Setchel, *Gen. M. M* .... Cincinnati, O.
Cin. Div.: C. B. Cole, *Supt* .... Seymour, Ind.
E. E. Jenks, *A. Gen. For* ...... Seymour, Ind.
J. P. Coulter, *M. C. B* .... Aurora, Ind.
Arthur Donaldson, *M. M* ...... Vincennes, Ind.
St. L. & Sp. Div.: C. M. Stanton, *Supt*. St. Louis, Mo.
J. W. Stokes, *M. M.* (Spring. Div.).. Pana, Ill.
Louisv. Div.: C. B. Cole, *Supt* . Louisville, Ky.
Oil City & Chicago R. R. (*See Buff., N. Y. & Phil.*)
Old Colony R. R. 4-8½ g. 470 m. 124 lo. 3,527 cars.
J. R. Kendrick, *Gen. Man* .... Boston, Mass.
R. W. Husted, *Pur. Agt* .... Boston, Mass.
Jas. N. Lauder, *Supt. R. S* ...... Boston, Mass.
Sam. Stevens, *S. Br. & Bld'gs* .... Boston, Mass.
Main Li. Div.: J. H. French, *Supt* ... Boston, Mass.
. *M. M* .... Boston, Mass.
Cape Cod Div.: C. H. Nye, *Supt*.. Hyannis, Mass.
C. Berkley Powell, *M. M* .... Boston, Mass.
No. Div.: S. A. Webber, *Supt* .... Fitchburg, Mass.
F. M. Twombly, *M. M* .... Taunton, Mass.
Olympia & Chehalis Val. R. R. 3 g. 15 m.
Otis Sprague, *Supt* .... Olympia, W. T.
Oregon Ry. & Navigation Co.
3 & 4-8½ g. 577 m. 72 lo. 1,611 cars.
C. H. Prescott, *V. P. & Gen. Man*. Portland, Ore.
F. T. Dodge, *Supt*. (Riv. Div.) .... Portland, Ore.
H. S. Rowe, *Supt*. (Ry Div.) ...... Portland, Ore.
J. M. Drake, *Pur. Agt* .... Portland, Ore.
Goodall, Perkins & Co., *Supt*. (Ocean Div.)
San Francisco, Cal.
C. C. Hobart, *Gen. M. M* ...... The Dalles, Ore.
Chas. A. Phipps, *M. C. B* ..... The Dalles, Ore.
Oregon & California R. R. 4-8½ g. 449 m. 43 lo. 626 c.
R. Koehler, *Gen. Man* .... Portland, Ore.
J. Brandt, *Gen. Supt* .... Portland, Ore.
W. T. Bodley, *Pur. Agt* .... Portland, Ore.
A. Brandt, *M. M* .. .. Portland, Ore.
Ottumwa & Kirkville Ry. 4-8½ g. 13 m.
J. A. Kebler, *Supt*. .... Ottumwa, Ia.
Owensboro & Nashville R. R. 5 g. 44 m. 3 lo. 70 c.
M. Newbold, *Supt* .... Owensboro, Ky.
H. M. Gabel, *M. M. & C. B* .... Owensboro, Ky.
Oxford & Henderson R. R. 4-8½ g. 13 m. 2 lo. 11 c.
James A. White, *Gen. Supt* ... Henderson, N. C.
James E. Lawrence, *M. M* .... Henderson, N. C.

P

Pacific Coast Ry. 3 g. 64 m.
J. M. Fillmore, *Manager*. San Luis Obispo, Cal.
W. H. Masterman, *M. M. & C. B.* do.
Painesville & Youngstown Ry. 3 g. 65 m. 7 lo. 319 c.
R. K. Paige, *Rec. & Man* .... Painesville, O.
J. A. Newcome, *Supt. R. S* ..... Painesville, O.
Panama R. R. 5 g. 48 m. 14 lo. 2,200 cars.
G. A. Burt, *Gen. Supt* ..... Aspinwall, U. S. Col.
E. Z. Penfield, *Pur. Agt* .... New York, N. Y.
Jas. Reilly, *M. M* .... Aspinwall, U. S. Col.
Passumpsic R. R. 4-8½ g. 147 m. 28 lo. 1,101 cars.
E. Raymond, *Pres. & Pur. Agt*.. Boston, Mass.
H. E. Folsom, *Supt* .... Lyndonville, Vt.
L. L. Brigham, *M. M* .... Lyndonville, Vt.
L. F. Woodard, *M. C. B* .... Lyndonville, Vt.
Paulding & Cecil Railway. 4-8½ g. 7 m. 3 lo. 28 c.
S. Frank Eagle, *Pres* .... Cecil, O.
Paw Paw and Toledo & South Haven R. Rds.
3 g. 20 m. 3 lo. 16 cars.
John Ihling, *Supt* .... Lawton, Mich.
Peach Bottom R. R. 3 g. 55 m. 6 lo. 52 cars.
B. B. Newton, *Supt. & Pur. Agt* ... Oxford, Pa.
E. H. Williams, *M. C. B* .... York, Pa.
W. P. Kirk, *M. M* .... Oxford, Pa.
Pemigewasset Valley R. R. 4-8½ g. 21 m. 2 lo. 127c.
J. Thomas Vose, *Pres* .... Boston, Mass.
Pennsylvania Co.'s (5) Roads.
4-9 g. 3,222 m. 920 lo. 32,809 cars.
Gen. Divs. (1), (2), (3), (4) and (5).
Wm. A. Baldwin, *Gen. Man* ..... Pittsburg, Pa.
John Thomas, *Gen. Supt* ...... Pittsburg, Pa.
Wm. Mullins, *Gen. Pur. Agt* ...... Pittsburg, Pa.
Joseph Wood, *Supt. M. P* .... Fort Wayne, Ind.
(1) Pittsburg, Ft. Wayne & Chicago Ry.
4-9 g. 468 m. 288 lo. 8,023 cars.
E'n Div.: A. B. Starr, *Supt* .... Allegheny, Pa.
Geo. J. Parkin, *M. M* .... Allegheny, Pa.
D. M. Peppard, *M. M* .... Crestline, O.
W'n Div.: C. D. Law, *Supt* ..... Ft. Wayne, Ind.
F. D. Casanave, *M. M* .... Ft. Wayne, Ind.
A. H. Somers, *Gen. For. Shops* ... Chicago, Ill.
(2) Ashtabula & Pittsburg, and
(3) Erie & Pittsburg R. Rds. 221 m. 29 lo. 1,362 c.
John M. Kimball, *Supt* . Lawrence Junc., Pa.
J. A. Wood, *Gen. For. Shops* .... Erie, Pa.
(4) Cleveland & Pittsb'g R. R. 225 m. 97 lo. 3,534 c.
R. F. Smith, *Asst. Man* .... Cleveland, O.
Philip Bruner, *Supt* .... Wellsville, O.
W. F. Beardsley, *Mast. of Mach*. Wellsville, O.
5) No-W'n Ohio Ry.: J. S. Morris, *Supt* ... Toledo, O.
Pennsylvania R. R. Co.'s Roads. (7 Gen. Divs.)
4-9 g. 3,158 m. 1,459 loco. 66,816 cars.
Chas. E. Pugh, *Gen Man* ...... Philadelphia, Pa.
Enoch Lewis, *Pur. Agt* .... Philadelphia, Pa.
John Reilly, *Supt. Trans* ...... Philadelphia, Pa.
T. N. Ely, *Gen. S. M. P* .... Altoona, Pa.
Pennsylvania R. R. Divs.
4-9 g. 1,213 m. 705 lo. 46,819 cars.
S. M. Prevost, *Gen Supt*. ... . Altoona, Pa.
Frank L. Sheppard, *Supt. M. P*.. Altoona, Pa.
G. W. Strattan, *M. M* .... Altoona, Pa.
Jno. P. Levan, *Gen. Fore* ...... Altoona, Pa.
Phila. Div.: Tho. Gucker, *Supt*. Philadelphia, Pa.
H. D. Garrett, *M. M* .... W. Philadelphia, Pa.
I. W. Van Houten, *Gen. For* .... W. Phila., Pa.
Mid. Div.: O. E. McClellan, *Supt*. Harrisburg, Pa.
E. L. Caum, *M. M* .... Harrisburg, Pa.
Samuel W. Myers, *Gen. For*. Harrisburg, Pa.
Altoona Div.: J. B. Hutchinson, *Supt*. Altoona, Pa.
Pitts. Div.: Robert Pitcairn, *Supt* .... Pittsburg, Pa.
D. O. Shaver, *M. M* .... Pittsburg, Pa.
J. G. Stewart, *Gen. For* .... Pittsburg, Pa.
W. Pa. Div.: A. P. Kirtland, *Supt*. Blairsville, Pa.
Wm. B. Norris, *M. M* .... Blairsville, Pa.
M. H. Fails, *Gen. For* .... Blairsville, Pa.
Fred. Div.: Wilson Brown, *Supt* .... York, Pa.
Tyrone Div.: S. S. Blair, *Supt* .... Tyrone, Pa.
Lew. Div.: Wm. M. Phillips, *Supt*. Lewistown, Pa.
Bed. Div.: R. L. Holliday, *Supt* ...... Bedford, Pa.
Monong. Div.: David M. Watt, *Supt*. Pittsburg, Pa.
Wm. Lininger, *M. M* .... Pittsburg, Pa.
Schuylkill Div.:
Jas. Reed, *Supt* .... Philadelphia, Pa.
(2) United R. Rs. of N. J. Divs. 471 m. 330 lo. 4,041 c.
F. Wolcott Jackson, *Gen. St*. Jersey City, N. J.
H. S. Hayward, *Supt. M. P*.. Jersey City, N. J.
David H. Baker, *Gen. For* ... Jersey City, N. J.
N. Y. Div.: Robt. E. Pettit, *Supt*. Jersey City, N. J.
L. A. Bosdevex, *M. M* ... Jersey City, N. J.
E. F. Bosdevex, *Gen. For*. Jersey City, N. J.
Belv. Div.: J. A. Anderson, *Supt*. Lambertv., N. J.
R. McDowell, *M. M* ...... Lambertville, N. J.
Amboy Div.: W. N. Bannard, *Supt*. Camden, N. J.
Thos. Kerr, *M. M* .... So. Amboy, N. J.
P. S. Bogart, *Gen. For* ...... So. Amboy, N. J.
(2½) Camden & At. Rd.: 75 m. 18 l. 261 c.
Joseph Crawford, *Supt* .... and
Rufus Hill, *M. M* .... Camden, N. J.
Samuel Wills, *M. C. B* .... Camden, N. J.
(3) West Jersey R. R. 4-9 g. 188 m. 27 lo. 294 cars.
Joseph Crawford, *Gen. Supt* ..... Camden, N. J.
W. McAllister, *M. M* .... Camden, N. J.
C. C. Williams, *Gen. For* .... Camden, N. J.
(4) Phila., Wilm. & Balt. R. R. 409 m. 128 lo. 1,882 c.
H. F. Kenney, *Gen. Supt* .... Philadelphia, Pa.
J. M. Wallis, *S. M. P* .... Philadelphia, Pa.
H. D. Gordon, *M. M* .... Wilmington, Del.
W. H. Lungren, *M. C. B* ..... Wilmington, Del.
Cen. Div.: L. K. Lodge, *Supt* .... Media, Pa.
Del. Div.: I. N. Mills, *Supt* ..... Wilmington, Del.
Mo. Div.: H. H. Carter, *Supt*.. Wilmington, Del.
5) Phila. & Erie R. R. Divs.: 437 m. 110 lo. 3,089 c.
R. Neilson, *Gen. Supt* .... .. Williamsport, Pa.
A. O. Dayton, *Supt. Mo. Po*.. Williamsport, Pa.
E'n. Div.: E. B. Westfall, *Supt*. Williamsport, Pa.
Sun. H. & W. Div: A. Walter, *Supt.*; and
H. K. Stout, *M. M* .... Sunbury, Pa.
Mid. Div.: Tho. A. Roberts, *Supt* ..... Renovo, Pa.
Wm. L. Holman, *M. M* .... Renovo, Pa.
West'n Div.: J. W. Reynolds, *Supt* ..... Erie, Pa.
W. T. Smith, *M. M* .... Erie, Pa.
6) Northern Central Ry. 4-9 g. 346 m. 152 lo. 6,610 c.
Robert Neilson, *Gen. Supt* ... Williamsport, Pa.
A. O. Dayton, *Supt. M. P* .... Williamsport, Pa.
A. W. Sumner, *Pur. Agt* ... . Baltimore, Md.
J. M. Coale, *M. M* .... Baltimore, Md.
G. W. Demarest, *Gen. For* ...... Baltimore, Md.
Susq. Div.: E. B. Westfall, *Supt*. Williamsport, Pa.
Sham. Div.: A. Walter, *Supt* .... Sunbury, Pa.
Elm. & Can. Divs.: S. Meade, *Supt*.. Elmira, N. Y.
Jas. Strode, *M. M* .. .. Elmira, N. Y.
J. C. Dyott, *Gen. For* .... Elmira, N. Y.
Baltimore Div.: H. W. Kapp, *Supt*. Baltimore, Md.
(7) Balt. & Pot. & Alex. & Fred. 125 m. 30 lo. 300 c.
H. F. Kenny, *Gen. Supt* ...... Philadelphia, Pa.
A. W. Sumner, *Pur. Agt* ... . Baltimore, Md.
J. M. Wallis, *Supt. Mo. Po* .... Philadelphia, Pa.
H. D. Gordon, *M. M* .... Wilmington, Del.
J. Lescallett, *For. Mach. Shop*. Washington, D. C.
R. F. Downs, *For. Car Shop*.. Washington, D. C.
Penn. Coal Co.'s R. R. 4-3 g. 67 m. 23 eng. 3,271 c.
J. B. Smith, *Gen. Supt* ..... . Dunmore, Pa.
And. Crane, *M. M.* .... Dunmore, Pa.
Geo. W. Simpson, *M. C. B* .... Dunmore, Pa.
Pennsylvania, Slatington & New England R. R.
In progress. 4-8½ g. 18 m. 1 lo. 20 cars.
C. H. Stanton, *Supt* .... New York, N. Y.
Pennsylvania & Erie R. R.—Early Branch.
C. R. Early, *Gen. Supt* .... Ridgeway, Pa.
Pensacola & Atlantic R. R. 5 g. 161 m. 9 lo. 67 cars.
W. D. Chipley, *Gen. Supt* ...... Pensacola, Fla.
W. D. Robb, *M. M* .... Pensacola, Fla.
Pensacola & Perdido R. R. 5 g. 10 m. 5 lo. 92 cars.
B. F. Simmons, *Pr. & Supt* .... Pensacola, Fla.
H. W. Simmons, *Pur. Agt* ...... Pensacola, Fla.
J. C. Schutte, *M. M* .... Pensacola, Fla.
People's Ry. 4-8½ g. 15 m. 2 lo. 14 cars.
W. D. Pollard, *Supt* .... Pottsville, Pa.
Peoria, Decatur & Evansville Ry.
4-8½ g. 254 m. 30 lo. 1,660 cars.
G. L. Bradbury, *Gen. Man* .... Peoria, Ill.
P. Reilly, *M. M* .... Mattoon, Ill.
Peoria & Farmington R. R. (*See Cen. Ia.*)
Peoria & Pekin Union Ry. 4-8½ g. 20 m. 12 lo. 106 c.
Thos. B. Burnett, *Gen. Supt. & P. A*. Peoria, Ill.
O. W. Bell, *Supt* .... Peoria, Ill.
R. F. Hurd, *M. M. & C. B* .. .. Peoria, Ill.
Perkiomen R. R. 4-8½ gauge 39 miles.
D. B. Clack, *Supt* ...... Perkiomen Junction, Pa.
H. Boyd, *Pur. Agt* .... Norristown, Pa.
Petersburg R. R. 4-8½ g. 64 m. 10 lo. 133 cars.
R. M. Sully, *Gen. Supt* .... Petersburg, Va.
Geo. F. Jones, *Pur. Agt* .... Petersburg, Va.
J. R. Woodard, *M. M* .... Petersburg, Va.
J. W. Fleming, *M. C. B* .... Petersburg, Va.
Phila., Wilmington & Balt. R. R. (*See Penna. R. R.*)
Peterborough & Hillsborough. (*See Northern, N. H.*)
Philadelphia, Newtown & N. Y. R. R. 4-8½ g. 23 m.
W. M. Geary, *Supt* .... Philadelphia, Pa.
Phila. & Atlantic City Ry. 3-6 g. 55 m. 11 lo. 134 cars.
W. Bertolet, *Supt* .... Philadelphia, Pa.
W. S. Wilson, *Pur. Agt* .... Philadelphia, Pa.
H. M. Messimer, *M. M* .... Camden, N. J.
E. Lippincott, *M. C. B* .. .. Camden, N. J.
Philadelphia & Erie R. R. (*See Penna. R. R.; (5) Div.*)
Philadelphia & Reading R. R. (and Branches.)
4-8½ g. 1,582 m. 907 lo. 56,775 cars.
John E. Wootten, *Gen. Man*.. Philadelphia, Pa.
W. S. Wilson, *Pur. Agt* ...... Philadelphia, Pa.
Geo. Eltz, *Supt Trans* .. .. Reading, Pa.
L. B. Paxson, *Eng. of Mach* ...... Reading, Pa.
No. Pa. & Bound Brook Div.:
I. A. Sweigard, *Supt* .... Philadelphia, Pa.
Mahanoy & Shamokin and other Brs.:
J. H. Olhausen, *Supt* .... Pottsville, Pa.
D. C. Reinhart, *Asst. Supt*. ... Catawissa, Pa.
A. A. Hesser, *Asst. Supt* Mahanoy Plane, Pa.
Schuylkill & Susquehanna Br.:
H. H. Tracy, *Supt* .... Pine Grove, Pa.
Reading & Columbia Br.:
A. M. Wilson, *Supt* .... Columbia, Pa.
2 N. J. Central Div.:
W. W. Stearns, *Supt* .... Elizabeth, N. J.
W. Woodcock, *M. M* .. .. Elizabethport, N. J.
Geo. Hackett, *M. C. B* .... Elizabethport, N. J.
C. G. Williams, *M. M* .... Jersey City, N. J.
John Alpaugh, *M. M* .... Phillipsburg, N. J.
L. Br. Div.: R. Blodgett, *Supt* ... Long Branch, N. J.
N. J. So. Div.: W. W. Stearns, *Supt*. Elizabeth, N. J.
Wm. Montgomery, *M. M* .... Manchester, N. J.
Chas. N. Sawyer, *M. C. B* .... Manchester, N. J.
Lehigh & Susquehanna Div.:
W. S. Polhemus, *Supt* .. Mauch Chunk, Pa.
Pittsburgh, Bradford & Buffalo Ry. (*See Pitts. & West.*)
Pittsburgh, Chartiers & Youghiogheny R. R.
4-8¾ g. 19 m.
Geo. S. Griscom, *Gen. Man* ..... Pittsburgh, Pa.
Pittsburgh, Cincinnati & St. Louis Ry. (5 Gen. Divs.)
4-9 g. 916 m. 239 lo. 7,133 cars.
James McCrea, *Manager* .... Columbus, O.
Wm. Mullins, *Pur. Agt* ... ... Pittsburgh, Pa.
Edward B. Wall, *Supt M. P* ...... Columbus, O.
(1) P., C. & St. L. Div.: E. B. Taylor, *Supt*. Pittsburgh, Pa.
C. B. Street, *M. M* .. .. Dennison, O.
J. M. Copeland, *G. F. Car Shops*. Steubenville, O.
2) C. & M. V. Div.: W. F. Black *Supt*.. Zanesville, O.
Leroy Kells, *M. M* . ... Lancaster, O.
Wm. Meikle, *Gen. For* .... Lancaster, O.
Daniel Jewell, *Gen. F. Car Shops*. Lancaster, O.
(3) Li. Mi. Div.: Ralph Peters, *Supt* .... Cincinnati, O.
Leroy Kells, *M. M* .... Cincinnati, O.
Jos. Underwood, *G. F. Car Shops*. Cincinnati, O.
(4) J. M. & I. R. R.: E. W. McKenna, *Supt*. Louisville, Ky.
Wm. Swanston, *M. M.* ... Jeffersonville, Ind.
Edw. Austin, *G. F. C. Shops*. Jeffersonville, Ind.
(5) Indianapolis & Vincennes R. R.
J. J. Turner, *Supt* .... Indianapolis, Ind.
Pittsburgh, Cleveland & Toledo R. R.
4-8¾ g. 78 m. 18 lo. 525 cars.
C. H. Andrews, *Pres* .... Youngstown, O.
W. F. Hofecker, *M. M* ... ... Youngstown, O.
Pittsburgh, Ft. Wayne & Chicago Ry. (*See Penna. Co.*)
Pittsburgh Southern Ry. (*See Balt. & O.*)
Pitts. & Castle Shannon R. R. 3-4 g. 9 m. 5 lo. 428 c.
James M. Bailey, *Gen. Supt* ... Pittsburgh, Pa.
Holmes Ward, *M. M* ...... Castle Shannon, Pa.
Wm. E. Long, *M. C. B* .... Pittsburgh, Pa.
Pitts. & Lake Erie R. R. 4-8¾ g. 70 m. 31 lo. 1,820 c.
W. C. Quincy, *Gen. Man* .... Pittsburgh, Pa.
D. H. Hostetter *Pur. Agt* .... Pittsburgh, Pa.
R. W. Jones, *Mast. Trans* ...... Pittsburgh, Pa.
S. W. Haines, *M. M* .... Pittsburgh, Pa.
Pittsburgh, McKeesport & Youghiogheny.
4-8¾ g. 57 m. 19 lo. 267 cars.
W. C. Quincy, *Gen. Man* ...... Pittsburgh, Pa.
R. W. Jones, *M. of Trans* ...... Pittsburgh, Pa.
S. W. Haines, *M. M* .... Pittsburgh, Pa.
Pitts. & Western R. R. 3 & 4-8½ g. 110 m. 18 lo. 365 c.
Pitts., Bradford & Buff. Ry. 3 g. 93 m. 8 lo. 163 c.
Tho. M. King, *Gen. Man* .... Allegheny, Pa.
J. T. Johnson, *Supt* ... . Allegheny, Pa.
J. Morton Hall, *Pur. Agt* .... Allegheny, Pa.
W. M. Flahavhan, *M. M* .... Allegheny, Pa.
Pontiac, Oxford & Pt. Austin R. R. 100 m.
Geo. W. Debevoise, *Pr. & Gen. Man*. N. York, N. Y.
Jas. Houston, *Gen. Supt* .... Pontiac, Mich.
Port Huron & No.-Western Ry. 3 g. 218 m. 14 lo. 288 c.
H. McMorran, *G. Man. & P. A*. Port Huron, Mich.
J. R. Wadsworth, *Supt* .. ... Port Huron, Mich.
Chas. Deifenbach, *M. M* ..... Port Huron, Mich.
Benj. Hillier, *M. C. B* .... Port Huron, Mich.
Port Jervis & Monticello R. R. 4-8½ g. 24 m. 3 lo. 13 c.
M. V. Heller, *Gen. Man* ...... Port Jervis, N. Y.
Port Royal & Augusta Ry. 5 g. 180 m. 16 lo. 310c.
J. N. Bass, *Supt* .... Augusta, Ga.
T. F. Warwick, *M. M. & M. C. B*. Augusta, Ga.
Portland & Ogdensburg. 4-8½ g. 110 m. 11 lo. 311 c.
J. Hamilton, *Gen. Supt. & P. A*.. Portland, Me.
M. M .... Portland, Me.
W. G. Brewer, *M. C. B* .... Portland, Me.
Portland & Rochester R. R. 4-8½ g. 52 m. 7 lo. 230 c.
J. W. Peters, *Supt. & Pur Agt*.. Portland, Me.
E. H. C. Tompson, *For. of Mach*.. Portland, Me.
David Dow, *For. of Car Repairs*. Portland, Me.
Potomac, Fred.'g & Pied. R. R 3 g. 38 m 2 lo. 38 c.
Will M. Grafton, *Supt* .... Fredericksburg, Va.
W. J. Sweigard, *M. M* .... Fredericksburg, Va.
Pough., Hart. & Bos. R. R. 4-8½ g. 45 m. 4 lo. 65 c.
J. A. Perkins, *Supt* .... Poughkeepsie, N. Y.
John L. Donaldson, *M. M*. Poughkeepsie, N. Y.
Pratt Coal & Coke Company's R. R. 5 g. 9 m. 5 lo. 100 c.
W. L. Gude, *Gen. Man* .... Pratt Mines, Ala.
Prescott & Thirty-Fifth Parallel R. R.
4-8½ g. 77 miles in progress.
Samuel A. Henszey, *Gen. Man*.. Prescott, Ariz.
Prince Edward Island Ry. 3-6 g. 199 m. 18 lo. 280 c.
Jas. Coleman, *Supt. & Pur. Agt.*;
Jos. Unsworth, *M. Supt. & Storekeeper*; and
D. M. Fraser, *M. C. B*.. . Charlottetown, P. E. I.
Profile & Franconia Notch R. R. 3 g. 15 m. 3 lo. 18 c.
Emmons Raymond, *Pur. Agt* .... Boston, Mass.
C. H. Greenleaf, *Supt* ...... Profile House, N. H.
Prospect Park & Coney Island R. R.
4-8½ g. 15 m. 8 lo. 123 cars.
R. Schermerhorn, *Supt* .... Brooklyn, N. Y.
Martin Painter, *M. M* .... Brooklyn, N. Y.
Prov., Warren & Bristol R. R. 4-8½ g. 19 m. 6 lo. 79 c.
Waterman Stone, *Supt*.. .. .. Providence, R. I.
Rufus Smith, *M. M. & C. B* .... Bristol, R. I.
Prov. & Springfield R. R. 4-8½ g. 23 m. 4 lo. 92 c.
Wm. Tinkham, *Gen. Man* ..... Providence, R. I.
G. T. Richardson, *M. M* .... Providence, R. I.
Prov. & Worcester. 4-8½ g. 66 m. 34 lo. 1,155 c.
W. E. Chamberlain, *Supt* ..... Providence, R. I.
A. Griggs, *Supt. L. & C. D* ... Providence, R. I.
Pullman's Palace Car Co. 564 passenger cars.
A. B. Pullman, *2d V.-Pr. & G. M*.. Chicago, Ill.
Geo. F. Brown, *Gen. Supt* .... Chicago, Ill.
Wm. A. Angell, *Pur. Agt* .... Chicago, Ill.
S. W. Bretzfield, *Asst. Pur. Agt*. New York, N. Y.
A. Rapp, *Man*. (Chicago Works) .. Chicago, Ill.
H. L. Spaulding, *Man*. (Det. Shops). Detroit, Mich.
E. A. Benson, *Supt. Shops* ... ... St. Louis, Mo.

Q

Quebec Central Ry. 4-8½ g. 147 m. 10 lo. 267 cars.
J. R. Woodward, *Gen. Man*.. Sherbrooke, P. Q.
A. Steele, *Supt* .. .. Sherbrooke, Que.
R. D. Morkill, Jr., *Pur. Agt*.. Sherbrooke, P. Q.
Jas. Seiveright, *M. M* .. .... Sherbrooke, P. Q.
Quebec, Montreal, Ottawa & Occidental Ry.
4-8½ g. 354 m. 36 lo. 903 cars.
L. A. Senecal, *Gen. Supt* .... Quebec, Que.
Quebec & Lake St. John Ry. 4-8½ g. 36 m. 3 lo. 55 c.
J. G. Scott, *Manager* .... Quebec, Can.
Frank Fournier, *Supt* ... ... St. Raymond, P. Q.
John T. Eames, *M. M* .. .... St. Raymond, P. Q.
Queen Anne's & Kent and Townsend Branch R. R.
(*See Penna.; (4) Div.*)

R

Raleigh & Augusta Air-Line: Carolina Central.
Raleigh & Gaston R. Rs. 4-8½ g. 436 m. 50 lo. 994 c.
John C. Winder, *Gen. Man. & P. A*. Raleigh, N. C.
Raleigh Rds. 4-8½ g. 194 m. 22 lo. 563 cars.
B. R. Harding, *Supt. of Mach*. Raleigh, N. C.
Carolina Cen. R. R. 4-8½ g. 242 m. 26 lo. 431 c.
L. C. Jones, *Supt* .... .. Wilmington, N. C.
James Maglenn, *M. of Mach*. Laurinburg, N. C.
S. R. Ethridge, *M. C. B* ... Laurinburg, N. C.
Rensselaer & Saratoga R. R. (*See Del. & Hud. Can. Co.*)
Rhinebeck & Connecticut. (*See Hart. & Ct. Wn.*)
Richmond, Fredericksburg & Potomac R. R.
4-8½ g. 83 m. 15 lo. 146 cars.
E. T. D. Myers, *Gen. Supt* .. Richmond, Va.
T. L. Courtney, *Asst. Supt* .. Richmond, Va.
H. Kuhn, *M. M* .... Richmond, Va.
W. H. Trainham, *M. C. B*. ... Richmond, Va.
Rich., York River & Ches. R. R. (*See Rich. & Dan.*)
Richmond & Alleghany R. R. 4-9 g. 261 m. 19 lo. 837c.
Decatur Axtell, *Rec. & Gen. Man*. Richmond, Va.
M. Sweeney, *Pur. Agt* .. .. Richmond, Va.
Geo. D. Harris, *M. M. & C. B* ... Richmond, Va.
Richmond & Danville R. R. Co.'s Roads.
1,736 miles 218 loco. 3,833 cars.
A. L. Rives, *Gen. Man* .... Richmond, Va.
Peyton Randolph, *As. G. Man*.. Richmond, Va.
J. P. Minetree, *Pur. Agt* .... Richmond, Va.
R. D. Wade, *Supt. Mo. Po* ... ... Richmond, Va.
(1) Rich. & Dan. R. R. 5 g. 847 m. 131 lo. 2,687 cars.
Rich. & Dan. Div.: 5 g. 320 m. 80 lo. 1,797 c.
Wm. H. Green, *Supt* .... Richmond, Va.
M. M .... Richmond, Va.
J. B. Vaughan, *For. Car Sh*.. Richmond, Va.
North Carolina Div. 5 g. 223 m. 22 lo. 268 cars.
A. B. Andrews, *Supt* .... Raleigh, N. C.
W. H. Turrentine, *M. M*. Comp'y's Shops, N. C.
J. C. Holt, *For. Car Sh*. Comp'y's Shop. N. C.
Atlanta & Char. Air Line. 5 g. 286 m. 31 lo. 415 c.
Narrow-Gauge Branches. 3 g. 80 m. 5 lo. 41 c.
Edmund Berkley, *Supt* .... Atlanta, Ga.
T. W. Gentry, *M. M* .... Atlanta, Ga.
Z. T. Smith, *For. Car Sh* .... Atlanta, Ga.
(2 Charlotte, Col. & Aug. R. R. 5 g. 239 m. 22 lo. 287 c.
G. R. Talcott, *Supt* .... Columbia, S. C.
J. H. Green, *M. M.* (2 roads) .. Columbia, S. C.
(3) Columbia & Greenville R. R. 5 g. 297 m. 22 l. 224 c.
G. S. Talcott, *Supt* .... Columbia, S. C.
J. O. Meredith, *For. E. & C. Rep*.. do.
(4) Virginia Midland Ry. 4-8½ g. 353 m. 41 lo. 631 c.
W. M. S. Dunn, *Eng. & Supt*. Alexandria, Va.
J. E. Waddey, *M. of M* ...... Alexandria, Va.
J. T. Nalls, *M. C. B*. .... Alexandria, Va.
Richmond & Petersburg R. R. 4-8½ g. 25 m. 8 lo. 132 c.
J. R. Kenly, *Supt* .... Richmond, Va.
John O'Brien, *M. M* .... Richmond, Va.
Rio Grande R. R. 3-6 g. 22 m. 3 lo. 40 cars.
M. J. Gomila, *Rec. & Gen. Man*. Brownsville, Tex.
G. W. Rendall, *M. M* .... Brownsville, Tex.
M. Markwood, *M. C. B* ... ... Brownsville, Tex.
Rio Grande & Pecos Ry. 4-8½ g. 27 m. In progress.
W. W. Hungerford, *Man* .... Laredo, Tex.
Rochester & Lake Ontario Ry. 4-8½ g. 6 m. 2 lo. 10 c.
N. B. Ellison, *Man* .... Rochester, N. Y.
Rochester & Pittsb'g R. R. 4-8½ g. 260 m. 60 lo. 3,146 c.
Geo. E. Merchant, *Gen. Man* ... Rochester N. Y.
J. T. Gardiner, *Gen. Supt* .... Buffalo, N. Y.
C. W. Mills, *Supt. M. P* ... .. Rochester, N. Y.
Rock Island & Mercer County R. R., and
Rock I'd & Peoria Ry. 4-8½ g. 113 m. 13 lo. 357 c.
R. R. Cable, *V.-P. & Gen. Supt*.. Rock Island, Ill.
R. I. & P. Ry.: H. B. Sudlow, *Supt. & P. A.* do.
Joseph Elder, *M. M* .... Peoria, Ill.
R. I. & M. C. Rd.: B. T. Cable, *Supt*. R'k Island, Ill.
J. H. Parks, *M. M* .... Rock Island, Ill.
Rogersville & Jefferson R. R. 5 g. 16 m. 1 lo. 6 cars.
C. M. Leuty, *Supt* .... Rogersville, Tenn.
Rome (Ga.) R. R. 5 g. 20 m. 2 lo. 17 cars.
Eben Hillyer, *Supt* .... Rome, Ga.
O. W. Harbin, *M. M. & C. B* .... Rome, Ga.
Rome, Watertown & Ogdensburg R. R.
4-8½ g. 417 m. 61 lo. 1,831 cars.
H. M. Britton, *Gen. Man. & P. A*. Oswego, N. Y.
Geo. H. Haselton, *S. M. P. & M*.. Oswego, N. Y.
E'n Div.: J. D. Remington, *A. Supt*. Watertown, N. Y.
W'n Div.: W. H. Chauncey, *A. Supt*. Oswego, N. Y.
Roodhouse & Scottsville Ry. In progress.
Geo. P. Merrill, *Gen. Man* .... Chicago, Ill.
Ruby Hill R. R. (*See Eureka & Pal.*)
Rumford Falls & Buckfield R. R. 4-8½ g. 29 m. 2 l. 62 c.
L. L. Lincoln, *Supt. & Pur. Agt*... Canton, Me.

S

Sabine & East Texas Ry. (*See Cen. Pac.*)
Sacramento & Placerville R. R. (*See Cen. Pac.*)
Saginaw Bay & Northw'n R. R. 4-8½ g. 31 m. 6 lo. 136 c.
J. Jackson, *Gen. Man* .... Pinconning, Mich.
F. T. Lillote, *Act. Pur. Agt*... Pinconning, Mich.
Edward Keeler, *M. M* .... Pinconning, Mich.
Saginaw, Tuscola & Huron R. R.
3 g. 50 m. 3 lo. 83 cars.
M. B. Wilkinson, *Gen. Supt*.. E. Saginaw, Mich.
Saginaw Valley & St. Louis R. R. 4-8½ g. 39 m. 4 l. 64 c.
N. W. Merrill, *Supt* .... Saginaw, Mich.
Allan Bourn, *Pur. Agt*.. ... . Detroit, Mich.
Geo. C. Watrous, *M. M* .. .. Iona, Mich.
Salisbury R. R. 4-8½ g. 11 m. 1 lo. 1 car.
R. J. Batzer, *Supt* .... Pittsburgh, Pa.
Salt Lake & Western R. R. (*See Un. Pac.; (6) Div.*)
San Francisco & No. Pac. 4-8½ g. 139 m. 11 lo. 245 c.
Arthur Hughes, *Gen. Man*.. San Francisco, Cal.
H. C. Whiting, *Supt* .... San Rafael, Cal.
Ed. Reynolds, *Gen. M. M* .... Donahue, Cal.
Ed. Reynolds, *M. C. B* .... Donahue, Cal.
Sanborn, Cooperstown & Turtle M. R. R. In progress.
C. A. Roberts, *Gen. Man*. .. .. Sanborn, Dak.
Sandy River R. R. 2 g. 18 m. 3 lo. 36 cars.
N. B. Beal, *Pres. & Supt* .... Phillips, Me.
M. Saunders, *M. M. & C. B* .... Phillips, Me.
Sandusky, Mansfield & Newark R. R. (*See B. & O.*)
Sanford & Indian River R. R. (*See So. Flor.*)
San Luis Obispo & Santa Maria R. R.
3 g. 20 m. 2 lo. 30 cars.
Charles Goodall, *Man* ...... San Francisco, Cal.
San Pete Valley R. R. 3 g. 33 m. 2 lo. 57 cars.
F. C. Hand, *Supt*.. .... Wales, U. T.
J. E. Bamberger, *Pur. Agt* .... Salt Lake, U. T.
B. Bates, *M. M* .... Wales, U. T.
Santa Cruz R. R. (*See So. Pac.; Nor'n Div.*)
Saratoga, Mt. McGregor & Lake George R. R.
3 g. 11 m. 3 lo. 12 cars.
John McGee, *Supt*. .... Saratoga Springs, N. Y.
Savannah, Florida & W'n Ry. 5 g. 425 m. 50 lo. 736 c.
H. S. Haines, *Gen. Man* .... Savannah, Ga.
R. G. Fleming, *Supt* .... Savannah, Ga.
F. S. Pendergast, *Ch. Eng* .... Savannah, Ga.
A. A. Aveilhé, *Pur. Agt* .... Savannah, Ga.
G. M. D. Riley, *M. of Mach* ...... Savannah, Ga.
E. Giffken, *For. Car Dept* ..... Savannah, Ga.
Sav., Griffin & No. Ala. R. R. *Op. by Central (Ga.).*
Schuylkill & Lehigh R. R. (*See Phil & Read.*)
Scoharie Valley R. R. (*See Middleburg & Sch.*)
Scioto Valley R. R. 4-8¾ g. 132 m. 17 lo. 548 cars.
Geo. Skinner, *Supt. & P. A t* ..... Columbus, O.
R. Bromley, *M. M* ... . Portsmouth, O.
Seaboard & Roanoke R. R. 4-8½ g. 80 m. 21 lo. 384 c.
E. G. Ghio, *Mast. of Trans* .... Portsmouth, Va.
J. A. Walton, *Pur. Agt* .... Portsmouth, Va.
M. M. Pendleton, *S. M. P. & M*. Portsmouth, Va.
Sedalia, Warsaw & Southern Ry. (*See Mo. Pac.*)
Sharpsville R. R. 4-8½ g. 23 m. 3 lo. 13 cars.
Thomas M. King, *Gen. Man* .... Pittsburgh, Pa.
Walter Pierce, *Gen. Man* .... Sharpsville, Pa.
Shell Beach R. R. 5 g. 22 m.
M. R. Spelman, *Supt* .... New Orleans, La.
Shenandoah Valley R. R. 4-9 g. 249 m. 32 lo. 849 c.
Norfolk & Western R. R. 5 g. 486 m. 82 lo. 1,779 c.
J. H. Sands, *Gen. Supt* .... Roanoke, Va.
W. C. De Armond, *Pur. Agt*.. Philadelphia, Pa.
Chas. Blackwell, *Supt. of M. P*... Roanoke, Va.
W. A. Morgan, *M. C. B* .... Lynchburg, Va.
Sh. Val. Rd.: D. W. Flickwir, *Supt*., Roanoke, Va.
N. & W.; W. Div.: Frank Huger, *Supt.*; and
N. & W.; E. Div.: N. M. Osborne, *Supt.*; and
J. T. Robinett, *M. M* . ..... Petersburg, Va.
Shenango & Allegheny R. R. 4-9½ g. 57 m. 8 lo. 248 c.
J. T. Blair, *G. Man. & Pur. Agt*. Greenville, Pa.
Edw. Richardson, *M. M. & C. B*. Greenville, Pa.
Shepaug R. R. 4-8½ g. 38 m. 3 lo. 28 cars.
Edwin McNeill, *Supt* .... Litchfield, Ct.
F. J. Broughet, *M. M* .... Litchfield, Ct.
Ship Is., Ripley & Ky. R. R. 3 g. 25 m. 2 lo. 23 cars.
C. L. Harris, *Supt. & Pur. Agt* .... Ripley, Miss.
W. H. Phelps, *M. M* .... Ripley, Miss.
Silver City, Deming & Pacific R. R. 3 g. 47 m. 3 l. 141 c.
John W. Smith, *Gen. Supt* .... Silver City, N. M.
Silver Lake Ry. 4-8½ g. 6 m. 1 lo. 4 cars.
S. L. Chapin, *Supt* .... Perry, N. Y.
Sinaloa & Durango R. R. 4-8½ g. 38 m. 2 lo. 40 cars.
Geo. S. Skilton, *Supt* ...... Altata, Sinaloa, Mex.
John E. Bell, *M. M* .... Culiacan, Mex.
Skaneateles R. R. 4-8½ g. 5 m. 2 lo. 5 cars.
J. McNamara, *Supt* .... Skaneateles, N. Y.
Sioux City & Pacific R. R. 4-8½ g. 427 m. 28 lo. 785 c.
P. E. Hall, *Gen. Man. & P. A*. Cedar Rapids, Ia.
C. M. Lawler, *Gen. Supt* .... Missouri Valley, Ia.
R. W. Hamer, *Pur. Agt*.. .... Chicago, Ill.
W. G. Brownson, *Asst. Supt* ..... Norfolk, Neb.
S. A. Teal, *M. M* .... Missouri Valley, Ia.
W. H. Ramseyer, *M. C. B*.. Missouri Valley, Ia.
Smyrna & Delaware Bay R. R. (*See Kent County.*)
Sodus Bay & Southern Ry. 4-8½ g. 34 m. 4 lo. 40 c.
G. H. Stearns, *Gen. Man*. .. Sodus Point, N. Y.
G. H. Stearns, *Supt. & Pur. Agt*. Sodus Point, N. Y.
F. H. Garlock, *M. M* .... Sodus Point, N. Y.
C. H. Hill, *M. C. B* .... Sodus Point, N. Y.
Somerset R. R. 4-8½ g. 25 m. 3 lo. 24 cars.
W. M. Ayer, *Supt & Pur. Agt* ..... Oakland, Me.
S. P. Mosher, *For. Car Rep* .... No. Anson, Me.
C. Crowell, *For. Lo. Rep's* ..... No. Anson, Me.
Somerset & Cambria R. R. (*See B. & O.*)
Sonora Ry. (*See A., T. & S. Fe.*)
Sonoma Valley:
Arthur Hughes, *Gen. Man*. San Francisco, Cal.
H. C. Whiting, *Supt* .... San Rafael, Cal.
J. T. Peters, *Asst. Supt* .... Glen Ellen, Cal.
Ed. Reynolds, *M. M* .. .. Donahue, Cal.
South & North Alabama R. R. (*See Louis. & Nash.*)
South Carolina Ry. 5 g. 246 m. 46 lo. 834 cars.
John B. Peck, *Gen. Man*. ...... Charleston, S. C.
S. B. Pickens, *Pur. Agt* .... Charleston, S. C.
P. J. Cochrane, *Mast. of Mach*. Charleston, S. C.
Geo. H. Gramling, *M. C. B* .... Charleston, S. C.
South-Eastern Ry. 4-8½ g. 280 m. 30 lo. 1,000 cars.
T. A. McKinnon, *Gen. Man* ..... Montreal, Can.
A. G. Eastman, *M. M* .... Farnham, P. Q.
South Florida R. R. 3 gauge 115 m. 13 lo. 250 cars.
B. R. Swoope, *Supt. & P. A* .... Sanford, Fla.
R. Derby, *M. M* .... Sanford, Fla.
A. D. Stentiford, *M. C. B* .... Sanford, Fla.
South Mountain R. R. 4-8½ g. 18 m. 4 lo. 22 c.
W. H. Woodward, *Supt*. Pine G've Furnace, Pa.
South Pacific Coast R. R. 3 g. 81 m. 16 lo. 500 cars.
M. Fillmore, *Supt* .... San Francisco, Cal.
G. H. Waggoner, *Pur. Agt*.. San Francisco, Cal.
D. E. Arnold, *M. M. & C. B* .... Newark, Cal.
South-Western R. R. (Ga.) (*See Central of Ga.*)
South-Western Ry. (Ky.) 4-8½ g. 4 m. 1 lo. 38 cars.
J. M. Wilson, *Supt* .... Harrodsburg, Ky.
J. Tomlinson, *Pur. Agt* ...... Harrodsburg, Ky.
Southern Central R. R. 4-8½ g. 156 m. 21 lo. 467 c.
James G. Knapp, *Gen. Supt. & P. A*. Auburn, N. Y.
John White, *M. M* ... . Auburn, N. Y.
H. Mooney, *M. C. B* .... Auburn, N. Y.
Southern Kansas Ry. (*See At., Top. & Santa Fe.*)
Southern Maryland R. R. 4-8½ g. 20 m. 1 lo. 20 c.
Robert Knight, *Supt*. .... Brandywine, Md.
C. R. Joyce, *M. M* .... Brandywine, Md.
Southern Pacific R. R. 4-8½ g. 198 m. 30 lo. 728 c.
Northern Div. (*For other Divs. see Cen. Pac.*)
A. C. Bassett, *Supt* ...... San Francisco, Cal.
J. R. Watson, *Pur. Agt* ..... Sacramento, Cal.
J. T. Wilson, *M. M* .... San Francisco, Cal.
F. N. Bellisle, *M. C. B*. ... San Francisco, Cal.
Southern Pacific R. R. of Arizona. (*See Cen. Pac.*)
Southern Pacific R. R. of New Mexico. (*See Cen. Pac.*)
Spartanburg, Union & Columbia R. R.
(*See Rich. & Dan.; (3) Div.*)
Spring Brook R. R. 4-3 g. 8 m. 1 lo. 18 cars.
Charles Pugh, *Pres* .... Pittston, Pa.
Spring Hill & Parrsboro Ry. (*See Cumberland.*)
Springfield, Effingham & So.-E'n Ry. (*See Ind. & Ill.*)
Springville & Sardinia Ry. 4-8½ g. 12 m. 1 lo. 8 c.
Bertrand Chaffee, *Pres* .... Springville, N. Y.
St. Croix & Penobscot R. R. 4-8½ g. 22 m. 4 lo. 195 c.
S. W. Haycock, *Supt. & Pur. Agt*. . Calais, Me.
G. H. Corsen, *M. M* .... Milltown, Me.
H. C. Tincker, *M. C. B* .... Milltown, Me.
St. Helen, Houghton Lake & West. R. R. 4-8½ g. 13 m.
Z. C. Jessop, *Gen. Man* .... Detroit, Mich.
St. John & Maine Ry. (*See New Brunswick.*)
St. John's Ry. 4-8½ g. 14½ m. 2 lo. 24 cars.
R. McLaughlin, *Pr. & Supt*.. Jacksonville, Fla.
Geo. Ferro, *M. of Mach*.. .... Tocoi, Fla.
St. John's & Lake Eustis Ry. 3 g. 36 m.
W. J. Jarvis, *Supt* .... Ft. Mason, Fla.
St. Johnsb'ry & Lake Champ. 4-8½ g. 120 m. 10 lo. 372 c.
A. B. Jewett, *Supt. & P. A*.. St. Johnsbury, Vt.
Geo. E. Howe, *M. M. & C. B*. St. Johnsbury, Vt.
St. Joseph Valley R. R. 3 g. 15 m. 1 lo. 11 cars.
E. T. Chase, *Gen. Man*.. . Berrien Springs, Mich.
St. Joseph & Des Loge Ry. 3 g. 13 m. 4 lo. 70 cars.
T. T. Onderdonk, *Supt* ...... Bonne Terre, Mo.
St. Joseph & Western R. R.
4-8½ g. 252m. 21 lo. 175 cars.
L. D. Tuthill, *Gen. Supt. & P. A*. St. Joseph, Mo.

E. Sleepy, *M. M. & M. C. B* ....St. Joseph, Mo.
St. Joseph & Des Moines R. R. (*See K. C., St. J. & C. B.*)
St. Lawrence & Ottawa Ry. (*See Can. Pac.*)
St. Louis, Alton & Terre Haute R. R.
Main Line. (*See C., C., C. & I.; Ind. & St. L. Div.*
St. Louis & Cairo Div.: 4-8½ g. 137 m. 17 lo. 800 c
G. W. Parker, *Gen. Man* ....St. Louis, Mo.
J. L. Hinckley, *Supt*... ... .Belleville, Ill.
R. M. Pringle, *M. M*..........E. St. Louis, Ill.
St. Louis Bridge Co. and Tunnel R. R.
4-8½ g. 31 m. 22 lo. 11 cars.
Wm. Taussig, *Gen. Man*..........St. Louis, Mo
A. W. Dickinson, *Supt*.... ....St. Louis, Mo.
J. E. Williams, Jr., *Pur. Agt*....St. Louis, Mo
H. M. Smith, *M. M*...............St. Louis, Mo.
St. Louis, C. Cœur & St. Ch. Ry. 3 g. 16 m.
F. M. Colburn, *Gen. Man*... ...St. Louis, Mo.
St. Louis Coal R. R. 4-8½ g. 93 m. 10 lo. 217 cars.
R. J. Cavett, *Supt*..............Carbondale, Ill.
Jas. C. Bryden, *Pur. Agt*... ....St. Louis, Mo.
St. Louis, Des Moines & Northern Ry. 4-8½ g. 43 m.
C. F. Merk, *Supt*...............Des Moines, Ia.
St. L., Ft. Scott & Wichita R.R. 4-8½ g.160 m 61.337 c.
J. W. Miller, *V. P. & Gen. Man*..Fort Scott, Kan.
Tho. N. Lewis, *Asst. Supt*......Fort Scott, Kan.
Tho. N. Lewis, *Pur. Agt*.... ..Fort Scott, Kan.
Henry Berger, *M. M* ....Ft. Scott, Kan.
A. A. Liddell, *M. C. B*......... ..Ft. Scott, Kan.
St. L., Hannibal & Keokuk. 4-8½ g. 85 m. 5 lo. 70 c.
W. W. Walker, *Gen. Supt*...... .. Hannibal, Mo.
Geo. Douglass, *Pur. Agt*.........Hannibal, Mo.
St. Louis, Iron Mt. & So'n Ry. (*See Mo. Pac.; (4) Div.*)
St. L., Keokuk & No.-W'n. Ry. (*See C., B. & Q.*)
St. L., Salem & Little Rock. 4-9 g. 72 m. 5 lo. 111 c.
H. A. Crawford, *V. Pr. & P. A*...St. Louis, Mo.
E. B. Sankey, *Supt*...................Salem, Mo.
Thomas Everson, *M. M*. ....Steelville, Mo
J. W. Houston, *M. C. B*...........Steelville, Mo.
St. Louis & Cairo R. R. 3 g. 152 m. 22 lo. 896 cars.
Chas. Hamilton, *Gen. Supt*..... .St. Louis, Mo.
T. W. Newell, *M. M*...........E. St. Louis, Mo.
St. L. & San Fran. Ry. 4-8½ g. 902 m. 88 lo. 3,000 c.
C. W. Rogers, *V. P. & Gen. Man*..St. Louis, Mo.
D. H. Nichols, *Mast. Tran*..No. Springfield, Mo.
A. T. Mann, Jr., *Pur. Agt*........St. Louis, Mo.
M. Kearney, *M. M. & C. B*..No. Springfield, Mo.
East Div.: A. Veech, *Supt*...... ...St. Louis, Mo.
Central Div.: W. A. Thoms, *Supt*..Springfield, Mo.
Kan. Div.: J. R. Wentworth, *Supt*. Neodesha, Kan.
St. Martin's & Upham Ry. 4-8½ g. 30 m. 2 lo. 8 cars.
A. E. Killam, *Manager*........St. Martin's, N. B.
St. Paul Eastern Grand Trunk Ry. 4-8½ g. 15 m.
D. C. Lamb, *Gen. Supt*..... ......Oconto, Wis.
St. Paul, Minneapolis & Manitoba Ry.
4-8½ g. 1,402 m. 201 lo. 5,068 cars.
A. Manvel, *Gen. Man*............St. Paul, Minn.
E. B. Wakeman, *Asst. Gen. Supt*. St. Paul, Minn.
J. C. Morrison, *Pur. Agt*........St. Paul, Minn.
H. Middleton, *M. M. & C. B* ... St. Paul, Minn.
Breck. Div.: W. S. Kemp, *Supt*...St. Paul, Minn.
F. F. Div.: J. B. Rice, *Supt*.......St. Paul, Minn.
No'n Div.: A. Guthrie, *Supt*.....Crookston, Minn.
St. Paul & Duluth R. R. 4-8½ g. 225 m. 37 lo. 1,080 c.
W. H. Fisher, *Gen. Supt* ....St. Paul, Minn.
J. G. Callahan, *Pur. Agt*........St. Paul, Minn.
Chas. F. Ward, *M. M. & M. C. B*..St. Paul, Minn.
State Line & Sullivan R. R. 4-8½ g. 25 m. 3 lo. 263 c.
I. O. Blight, *Supt*.................Towanda, Pa.
Staten Island R. R. 4-8½ g. 13 m. 4 lo. 18 c
J. W. Wilbur, *Supt*............New York, N. Y
Stony Clove & Catskill Mountain R. R.
3 g. 14 m. 2 lo. 22 cars.
Geo. Coykendall, *Gen. Supt*....Rondout, N. Y
Stony Creek R. R. 4-8½ g. 11 m
Geo. B. Boggs, *Supt* .... Norristown, Pa.
Sterling Mountain Ry. 6 g. 8 m. 2 lo. 145 cars.
J. C. Missimer, *Supt*.. ....Sloatsburg, N. Y
Suffolk Lumber R. R. 3 g. 15 m. 3 lo. 41 cars.
W. M. Whaley, *Supt*.. ....Suffolk, Va.
Summit Branch R. R. 4-9 g. 20 m. 7 lo. 10 cars.
Thomas Gucker, *Supt* ....Williamsport, Pa
Susquehanna & Delaware River R. R. In progress.
D. Y. Kilgore, *Pres*...........Philadelphia, Pa.
Sussex R. R. (*See Del., Lack. & West.*)
Syracuse, Binghamton & N. Y. R. R. (*See D. L. & W.*)
Syr., Ontario & N. Y. R. R.
Albert Allen, *Supt* ....New York, N. Y.
Syracuse, Geneva & Corning; Corning, Cowanasque & Antrim R. Rs. 4-8½ g. 142 m. 28 lo. 1,044 c.
A. H. Gorton, *Supt*....... ......Corning, N. Y.
W. E. Gorton, *Asst. Supt*.........Corning, N. Y.
Andrew Beers, *Pur. Agt*.. .....Corning, N. Y.
O. C. Patchell, *M. M*............Corning, N. Y.
C. J. Butler, *M. C. B*............Corning N. Y.

T

Tennessee Coal R. R. 5 g. 28 m. 8 lo. 204 cars.
A. M. Shook, *Gen. Man*......Tracy City, Tenn.
W. A. Knight, *M. M*......... Tracy City, Tenn.
Tennessee & Sequatchee Valley R. R.
3 g. 42 m. 1 lo. 24 cars.
Chas. Clinton, *Gen. Supt*....Spring City, Tenn.
P. V. Mooney, *Pur. Agt*......Spring City, Tenn.
Terre Haute & Indianapolis R. R.
4-9 g. 398 m. 105 lo. 4,170 cars.
Joseph Hill, *Gen. Supt*.... ....St. Louis, Mo.
C. R. Peddle, *P. Agt*........Terre Haute, Ind.
Geo. H. Prescott, *S. M. P. & M*. Terre Haute, Ind.
F. C. Cleaver, *M. M* ....Terre Haute, Ind
E. D. Carter, *M. C. B* ......Terre Haute, Ind.
Chas. Butler, *M. M*..... ....Effingham, Ill.
Clinton Idler, *Foreman* ... Indianapolis, Ind.
Terre Haute & So.-Eastern Ry. 4-9 g. 44 m. 2 lo. 145 c.
Geo. Atherton, *Supt*......... Terre Haute, Ind.
Texas-Mexican Ry. (*See Mex. Nat.*
Texas Trunk R. R. 4-8½ g. 36 m. 2 lo. 8 cars.
Hugh Irwin, *Gen. Supt*........ ..Dallas, Tex.
Texas Western Ry. 3 g. 52 m. 2 lo. 44 cars.
Henry Hatch, *Gen. Man* ... .Houston, Tex.
T. F. Glispin, *M. M* ....Houston, Tex.
Texas & N. O. R. R. (*See Cen. Pac.; G. H. & S. A. Div.*)
Texas & Pacific. (*See Mo. Pac. Ry.; (6) Div.*)
Texas & St. Louis Ry. 3 g. 769 m. 84 lo. 2,000 cars.
W. R. Woodard, *Rec. and Gen. Man*. St. Louis, Mo.
J. J. Frey, *Gen. Supt*....... ...Pine Bluff, Ark.
C. S. Brooks, *Pur. Agt*.... ...... St. Louis, Mo.
Mo. & Ark. Div.:
J. R. Hastings, *Supt* ....Pine Bluff, Ark.
Tex. Div.: H. Flanders, *Supt*.. ......Tyler, Tex.
P. J. Milan, *Gen. M. M*..........Pine Bluff, Ark.
Tionesta Valley R. R. 3 g. 15 m
George Dickinson, *Gen. Supt* .... Sheffield, Pa.
Tioga R. R 4-8½ and 6 g. 67 m. 18 lo. 960 cars.
R. Dupuy, *Supt*.... ....Blossburg, Pa.
J. C. Guthrie, *Pur. Agt*.. ...New York, N. Y.
Pere Bonny, *M. M*..............Blossburg, Pa.
D. H. Stratton, *M. C. B*...... .Blossburg, Pa.
Toledo, Ann Ar. & No. Mich. Ry.
4-8½ g. 63 m. 9 lo. 186 c.
J. M. Ashley, *Gen. Man*......Ann Arbor, Mich.
H. W. Ashley, *Supt. & Pur. Agt.* do
C. C. Dodge, *M. M*............Ann Arbor, Mich.
Toledo, Cin. & St. Louis R. R. 3 g. 798 m. 101 lo. 3,500 c.
E. P. Murray, *Gen. Supt*.... ....Toledo, O.
F. W. Stewart, *P. Agt*...............Toledo, O.
L. W. James, *Supt. Mach* ....Delphos, O.
Toledo Div.: W. H. Vandergrift, *Supt.*; do
Thos. Robertson, *M. M*..... .....Delphos, O.
J. S. Wiers, *For. Car Rep*........Delphos, O.
Del. & Cin. Divs.: C. A. Bell, *Supt*.......Cin., O.
T. J. Hamer, *M. M* ....Cincinnati, O.
So.-Ea. Div. and Dayton Div.:
C. E. Henderson, *Gen. Man* ......Dayton, O.
W. H. Anderson, *M. M*............Dayton, O.
St. Louis Div.: Frank F. Allen....Charleston, Ill.
P. H. Murphy, *M. M* .. ..Charleston, Ill.
Ironton Div.: C. C. Clark, *Supt* ....Ironton, O.
Dayton Div.: J. E. Gimperling, *Supt*. .Dayton, O.
Toledo & Indianapolis R. R. 4-8¾ g. 43 m. 4 lo. 118 c.
M. Clark, *Supt*.... .... .Toledo, O.
H. M. Swan, *M. M*. ....Toledo, O
Toledo & South Haven R. R. (*See Paw Paw.*)
Tonawanda Val. & Cuba R. R. (*See Brad., B. & K.*)
Toronto, Grey & Bruce Ry. 4-8½ g. 191 m. 28 l. 446 c.
Edmund Wragge, *Gen. Man*... .Toronto, Can.
W. Watson, *Pur. Agt* .... Toronto, Can.
David Preston, *M. M*............ Toronto, Can.
Toronto & Nipissing Ry. (*See Mid. Ry. of Can.*)
Troy & Boston R. R. 4-8½ g. 48 m. 20 lo. 484 cars.
O. Robinson, *Pres. & Pur. Agt*......Troy, N. Y.
Joseph Crandell, *Supt*. ....Troy, N. Y.
Z. B. Davis, *M. M* ....Troy, N. Y.
A. Brewer, *M. C. B*............ ......Troy, N. Y.
Troy & Greenfield R. R. & H. Tunnel. 4-8½ g. 44 m.
J. W. Locke, *Man*.........North Adams, Mass.
Tuckerton R. R. 4-9 g. 31 m. 2 lo. 29 cars.
J. J. Pharo, *Supt. & Pur. Agt*. Tuckerton, N. J.

U

Ulster & Delaware R. R. 4-8½ g. 74 m. 10 lo. 214 cars.
Jas. H. Jones, *Supt*..............Rondout, N. Y.
Joseph Rush, *M. M* ....Rondout, N. Y.
John H. Decker, *M. C. B*........Rondout, N. Y.
Union Pacific Ry. (7 Gen. Divs.)
3 & 4-8½ g. 4,633 m. 510 lo. 10,550 cars.
S. R. Callaway, *Gen. Man*...... ..Omaha, Neb.
S. T. Smith, *Gen. Supt* ....Omaha, Neb.
Thos. L. Kimball, *Asst. Gen Man*. Omaha, Neb.
Pur. Agt............Omaha, Neb.
I. H. Congdon, *S. M. P. & C. D*...Omaha, Neb
John Wilson, *Asst. do*..............Omaha, Neb.
(1) Neb. Div.: O. H. Dorrance, *Gen. Supt*. Omaha, Neb.
E. Div.: C. B. Havens, *Supt*.. .....Omaha, Neb.
R. McConnell, *M. M*........... Omaha, Neb.
A. M. Collett, *M. C. B*...........Omaha, Neb.
E. Sleppy, *M. M*..............G. Island, Neb.
L. Pole Div.: W. A. Deuel, *Supt*..Cheyenne, W. T.
J. H. McConnell, *M. M*. ....N. Platte, Neb.
R. McDougall, *M. M*. ....Cheyenne, W. T.
(2) Wy. Div.: E. Dickenson, *Gen. Supt*..Laramie, W. T.
T. E. Lewis, *M. M*. ....Laramie, W. T.
T. A. Davis, *M. M*.............Rawlins, W. T.
Wes. Div.: C. E. Wurtelle, *Supt*. Evanston, W. T.
Geo. F. Chapman, *M. M*.......Evanston, W. T.
(3) Idaho Div.: *Gen. Supt*.. . Ogden, U.
F. Rearden, *M. M*... .... Pocatello, Id.
Ogden Short Line Div.:
R. Blickensderfer, *Supt*.... .. Pocatello, Id.
Utah & Northern Div.:
W. P. P. St. Clair, *Supt*... ...Eagle Rock, Id.
W. J. Hemphill, *M. M*.......Eagle Rock, Id.
W. J. Hemphill, *M. M*........Eagle Rock, Id.
J. W. Paul, *Gen. For. C. D*.. .Eagle Rock, Id.
(4) Col. Cent. Div.: A. A. Egbert, *Gen. Supt*. Denver, Col.
F. Meirtsheimer, *M. M*. ....Denver, Col.
C. C. Div.: P. Touhy, *Supt*.........Denver, Col.
So. Park Div.: D. K. Sweet, *A. Supt*..Como, Col.
(5) Kan. Div.: H. O. Brinkerhoff, *G. Supt*. Kan. City, Mo.
K. Pac. Div.: J. O. Brinkerhoff, *Supt*. Kan. C'y, Mo.
J. O. Chapman, *M. M*. .... .Armstrong, Kan.
T. B. Roberts, *M. C. B*......Armstrong, Kan.
Kansas Central Div.:
J. O. Brinkerhoff, *Supt*..Leavenworth, Kan.
Smoky Hill Div.:
O. H. Dorance, *Supt*...........Wallace, Kan.
J. B. Dailey, *M. M*. ....Ellis, Kan.
(6) Salt Lake & Western Div.:
W. W. Ritter, *Supt*......Salt Lake City, Utah.
(7) Nevada Central Ry. 3 g. 93 m. 4 lo. 78 cars.
F. W. Dunn, *Gen. Supt. & P. A*. Battle Mt., Nev.
Z. T. Sprigg, *M. M*.......Battle Mountain, Nev.
United States Rolling Stock Co. 19 lo. 4,692 cars.
A. Hegewisch, *Pres*...........New York, N. Y.
W. H. Chaddock, *Gen. Agt*........Chicago, Ill.
Upson County R. R. (*See Central of Ga.*)
Utah Central Ry. 4-8½ g. 280 m. 21 lo. 358 cars.
John Sharp, *Gen. Supt*...Salt Lake City, Utah.
S. H. Hill, *Pur. Agt*.......Salt Lake City, Utah.
Geo. G. Bywater, *M. M*..Salt Lake City, Utah
Peter Reid, *M. C. B*.......Salt Lake City, Utah.
Utah & Nevada Ry. 3 g. 37 m. 3 lo. 33 cars
W. W. Ritter, *Gen. Man*...Salt Lake City, Utah.
Robert Anderson, *M. M*...Salt Lake City, Utah.
Utah & Northern Ry. (*See Union Pac.; (3) Div.*)
Utah & Pleasant Valley Ry. (*See Den. & Rio. Gr.*)
Utica, Ithaca & Elmira Ry. 4-8½ g. 120 m. 11 lo. 152 c.
Geo. S. Sadler, *Supt* ....Elmira, N. Y.
Edw. Mahler, *Pur. Agt*...........Elmira, N. Y.
C. J. Howe, *M. M. & M. C. B*..Breesport, N. Y.
Utica, & Black Riv. R. R. 4-8½ g. 180 m. 22 lo. 452 c.
J. F. Maynard, *Gen. Supt. & P. A*..Utica, N. Y.
John Bailey, *M. M*..................Utica, N. Y.
David James, *M. C. B*..............Utica, N. Y.

V

Vaca Vall. & Clear Lake R. R 4-8½ g. 30 m. 2 lo. 19 c.
G. B. Stevenson, *Gen. Supt*... .Vacaville, Cal.
Valley Ry. (Ohio) 4-8¾ g. 85 m. 21 lo. 889 cars.
Isaac Reynolds, *Gen. Man*..... .Cleveland, O
J. E. Turk, *Supt*... ....Cleveland, O.
H. Melcher, *Pur. Agt*.............Cleveland, O.
Valley R. R. Va. 4 8½ g. 62 m
S. Spencer, *Pres* . ...Baltimore, Md.
Vermont Valley R. R. (*See Conn. River.*)
Vicksburg & Brunswick R. R. (*See Cen. of Ga.*)
Vicksburg & Meridian R. R. (*See Cin., N. O. & Tex. Pac.*)
Vicks. Shreveport & Pac. R. R. (*See C., N. O. & T. P.*)
Victoria Ry. (*See Midland Ry. of Can.*)
Virginia Midland Ry. (*See Rich. & Dan.; (4) Div.*)
Virginia & Truckee R. R. 4-8½ g. 54 m. 17 lo. 375 c.
Carson & Colorado R. R. 3 g. 294 m. 6 lo. 134 c
H. M. Yerington, *Gen. Supt*... .. Carson, Nev.
R. J. Laws, *Supt*. (C. & Col.)..Hawthorne, Nev.
Hume Yerington, *Pur. Agt*........Carson, Nev.
I. N. Fording, *M. M*.. ....Carson, Nev.
M. M. Hyde, *M. C. B*.... .... Carson, Nev.

W

Wabash, Chester & W'n R. R. (*See St. Louis Coal.*)
Wabash, St. Louis & Pacific Ry. (4 Gen. Divs.)
4-8½ g. 3,241 m. 598 lo. 17,230 cars.
A. L. Hopkins, *2d V. P*......... St. Louis, Mo.
A. A. Talmage, *Gen. Man*... ...St. Louis, Mo.
H. H. Wellman, *Pur. Agt*........St. Louis, Mo.
Jacob Johann, *Supt. M. P. & M*. Springfield, Ill.
M. M. Martin, *Supt. Car Dept*.... Decatur, Ill.
John Lang, *Supt. Car Dept* ......Moberly, Mo.
(1) Eas'n Div.: G. W. Stevens, *Supt*........Peru, Ind.
J. B. Barnes, *M. M* ....Fort Wayne, Ind.
John McKenna, *M. M*............ Peru, Ind
Cairo Div.: *M. M* ......Carmi, Ill.
Rant'l Div.: B. F. Mathias, *Asst. Supt*. Rantoul, Ill
J. McCarthy, *M. M*.......... ....Rantoul, Ill
(2) Middle Div.: H. F. Clark, *Supt*....Springfield, Ill.
B. B. Rose, *M. C. B*...............Decatur, Ill.
G. A. Hurd, *Asst. Supt*. ....Forest, Ill.
(3) Northern Div.: E. N. Armstrong, *Supt*. Decatur, Ill.
M. C. B..........Peoria, Ill.
E. B. Hyde, *Asst. Supt* .... Havana, Ill.
(4) Western Div.: R. G. Butler, *Supt*....Moberly, Mo
W. H. Selby, *M. M*...............Moberly, Mo.
C. S. Buck, *M. C. B*................Moberly, Mo.
E. Dresser, *Asst. Supt*...........Stanberry, Mo
D. Moin. Div.: C. F. Meek, *A. Supt*. Des Moines, Ia
Walden's Bridge R. R. 3 g. 23 m. 3 lo. 37 cars.
John G. Scott, *Gen Man*....Jenks P. O., Tenn.
Wallkill Valley.
J. E. Childs, *Gen. Supt*........New York, N. Y.
Geo. H. Graves, *Supt*.... ......Kingston, N. Y.
E. Minshull, *M. M*........ ...Middletown, N. Y.
I. W. Fowler, *Pur. Agt*.... .Middletown, N. Y.
Walla Walla & Columbia Riv. R. R. (*See Ore. Ry.*)
Walton R. R. 5 g. 10 m. 1 lo. 7 cars.
D. H. Walker, *Pres* ....Monroe, Ga.
Warren & Farnsworth Valley R. R.
3 g. 11 m. 3 lo. 39 cars.
A. D. Wood, *Supt*.......... .....Warren, Pa.
Warwick Valley R. R. (*See Leh. & Hud. River.*)
Wasatch & Jordan Valley R. R. (*See Den. & Rio. Gr.*)
Washington, Ohio & West. R. R. 4-8½ g. 52 m. 5 lo. 87 c.
S. M. Brophy, *Supt* .... Alexandria Va.
W. Mountjoy, *Act. For*.........Alexandria, Va
John Harrison, *M. C. B*........Alexandria, Va.
Waynesburg & Washington Rd. 3 g. 29 m. 3 lo. 26 c.
C. E. Bower, *Supt*............Waynesburg, Pa.
A. M. Kline, *M. C. B*.... .....Waynesburg, Pa.
Welland Ry. 4-8½ g. 25 m. 4 lo. 147 cars.
William Pay, *Supt*.........St. Catharines, Ont.
Jas. Taylor, *M. M*... ......St. Catharines, Ont.
Wm. H. Pay, *M. C. B*......St. Catharines, Ont.
West End Narrow Gauge Ry. 3 g. 16 m. 3 lo. 13 c.
Rolla Wells, *Supt*............ . St. Louis, Mo.
M. M. Hodgman, *M. M*.........Florissant, Mo
West Feliciana R. R. 4-8½ g. 27 m. 2 lo. 22 cars
J. B. McGehee, *Pr. & Gen. Supt*. Bayou Sara, La.
J. A. Tilton, *M. M. & C. B*.....Bayou Sara, La
W. Va., Central & Pittsb'g Ry. 4-8½ g. 50 m. 4 lo. 119 c.
T. B. Davis, *Gen. Man*.......Piedmont, W. Va.
W. E. Porter, *Gen. Supt*......Piedmont, W. Va
Geo. W. Harrison, *Pur. Agt*...Piedmont, W. Va.
E. W. Lippencott, *M. M* ....Piedmont, W. Va.
West & East R. R. (*See Ill. Cen.; N. O. Div.*)
West Jersey R. R. (*See Penn. R. R.; (3) Div.*)
Western R. R. (of Ala.) 5 g. 85 m. 15 lo. 270 cars.
Atlanta & W. Point Rd. 5 g. 87 m. 14 lo. 240 c.
Cecil Gabbett, *Gen. Man. & Supt*...Mont., Ala.
C. D. Wall, *M. M. & C. B* ...Montgomery, Ala.
Western Counties' Ry. 4-8½ g. 67 m. 8 lo. 137 cars
J. Brignell, *Supt*. ....Yarmouth, N. S.
Western Maryland R. R. 4-8½ g. 157 m. 25 lo. 439 c.
J. M. Hood, *Pr. & Gen. Man*....Baltimore, Md.
R. J. Adair, *Pur. Agt*........... Baltimore, Md.
David Holtz, *Mast. of Mach*. Union Bridge, Md.
J. H. Nussear, *M. C. B*.......Union Bridge, Md.
Western No. Carolina R. R. 5 g. 210 m. 17 lo. 160 c.
V. E. McBee, *Supt*...............Salisbury, N. C.
Jos. P. Minetree, *Pur. Agt*.......Richmond, Va.
G. W. Gates, *M. M*..... ....Salisbury, N. C.
Western & Atlantic R. R. 5 g. 138 m. 58 lo. 952 c.
R. A. Anderson, *Gen. Supt*.........Atlanta, Ga.
A. B. Bostwick, *Asst. Supt*..... Atlanta, Ga.
Lamar Collier, *M. M*. ....Atlanta, Ga
Wm. Kinyon, *M. C. B*. ....Atlanta, Ga.
Wheeling, Pittsburg & Baltimore R. R..(*See B. & O.*)
Wheeling & Lake Erie R. R. 267 m. 31 lo. 1.456 c.
M. D. Woodford, *Gen. Man*..........Toledo, O
O. P. Dunbar, *Gen. M. M*...........Norwalk, O.
John Hillhouse, *Div. M. M*.........Norwalk, O.
Cleve. & Mar. Div.:
A. Galloway, *Div. M. M*...... Cambridge, O
Whitby, Port Perry & Lindsay Ry. (*See Mid. of Can.*)
White Water R. R. (*See Ft. W., Cin. & Lou.*)
Whitefield & Jefferson R. R. (*See Bos., Con. & Mon.*)
Whitneyville & Machiasport R. R. 8 m. 2 lo. 48 c.
C. Sullivan, *G. M. & Pur. Agt*. Whitneyville, Me.
Wicomico & Pocomoke R. R. 4-8½ g. 30 m. 2 lo. 38 c.
L. Showell, *Pres*............... ....Berlin, Md.
Williamsport & North Branch R. R.
4-8½ g. 9 m. 2 lo. 4 cars.
B. G. Welch, *Man. & P. Agt* ..Hughesville, Pa.
J. V. Chamberlain, *Supt. & M. M*. do.
Williamstown & Del. River R. R.
4-8½ g. 9 m. 1 lo. 10 cars.
Samuel Garwood, *Supt* ..Williamstown, N. J.
Wilmington, Columbia & Augusta R. R. (*See W. & W.*)
Wilmington & No'n R. R. 4-8¾ g. 85 m. 16 lo. 148 c.
J. H. Thompson, *Supt. & P. A*..Coatesville, Pa.
George Rommel, *M. M*.........Coatesville, Pa
Alex. Maitland, *M. C. B*...... ..Coatesville, Pa.
Wilmington & Weldon; Northeastern; S. C. Central; Cheraw & Darlington; Cheraw & Salisbury; and Wilmington, Columbia & Augusta R. Rs.
5 g. 599 miles 70 locomotives 1,120 cars.
H. Walters, *Gen. Man*......... Baltimore, Bal.
J. F. Divine, *Gen. Supt*.......Wilmington, N. C.
John Bisset, *M. M*..........Wilmington, N. C.
W. H. Day, *M. C. B*.............Florence, S. C.
J. H. Davis, *M. C. B.* (W. & W.). Wilmington, N. C.
Winifrede R. R. 4-9 g. 5 m. 1 lo. 65 cars.
Theodore Wright, *Pres*........Philadelphia, Pa.
Windsor & Annapolis Ry. 4-8½ g. 130 m. 10 lo. 160 c.
P. Innes, *Gen. Man*.............Kentville, N. S.
Wm. Yould, *M. M*..............Kentville, N. S.
Wm. Grierson, *M. C. B*.........Kentville, N. S.
Wisconsin Central R. R. 4-8½ g. 480 m. 59 lo. 1,800 c
F. N. Finney, *Gen. Man*.........Milwaukee, Wis.
E. K. Howes, *Pur. Agt* ....Milwaukee, Wis.
W. A. Short, *Supt. M. P. & M*...Stevens Pt., Wis.
Mil. & E'n Divs.: A. A. Allen, *S*..Milwaukee, Wis.
Wis., Minn. & S. M. & N. Div.:
W. E. Carroll, *Supt*.. ......Stevens Point, Wis.
Wisconsin, Iowa & Nebraska.
B. L. Harding, *Gen. Man*.... ...Des Moines, Ia.
G. C. McMichael, *Supt*.......Marshalltown, Ia.
M. C. Wheeler, *M. M*........Marshalltown, Ia.
Wisconsin & Michigan R. R. (*See Mil. & North'n.*)
Wisconsin & Minnesota R. R. (*See Wis. Cen.*)
Wood River Branch R. R. 4-8½ g. 6 m. 2 lo. 3 cars.
L. M. Barber, *Supt*............Hope Valley, R. I.
Woodstock R. R. 4-8½ g. 14 m. 1 lo. 3 cars.
J. G. Porter, *Supt*...............Woodstock, Vt.
Worcester, Nashua & Rochester R. R.
4-8½ g. 95 m. 20 lo. 523 cars.
C. S. Turner, *Pres. & G. Man*. Worcester, Mass.
G. W. Hurlburt, *Supt*.........Worcester, Mass.
John G. Brady, *M. M. & C. B*. Worcester, Mass
Worcester & Shrewsbury R. R. 3 g. 3 m. 3 lo. 9 c.
J. J. Coburn, *Supt*......... ....Worcester, Mass.
G. E. Hapgood, *Pur. Agt*....Worcester, Mass.
Chas. Cleveland, *M. M* ....Worcester, Mass.
Worcester & Somerset R. R. (*See N. Y., Phil. & Nor.*)

Y

York & Peach Bottom Ry. 3 g. 40 m. 4 lo. 74 c
S. M. Manifold, *Supt. & Pur. Agt*.....York, Pa.
S. J. Williams, *M. M*........... ......York, Pa.
Youghiogheny R. R. 4-9 g. 12 m.
John F. Wolf, *Supt* . ... .Irwin, Pa.
Albert Ford, *Asst. Supt. & P. Agt*...Irwin, Pa.